UNIVERSITY of TASMANIA

Reshaping practice to get the job done: A constructivist grounded theory study of the ways of working in perioperative nursing.

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Statement of Original Authorship

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The research associated with this thesis abides by the international and Australian codes on human and animal experimentation, the guidelines by the Australian Government's Office of the Gene Technology Regulator and the rulings of the Safety, Ethics and Institutional Biosafety Committees of the University.

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This research journey began with my supervisors posing the miracle question, 'when you take your final thesis in for printing, what will you know then that you don't know now?' This miracle question provided clarity of purpose and a focus on the end point that became the beacon for this journey. The path travelled has seen twists and turns and arrivals at some surprising destinations along the way. This has made the journey even more memorable.

I dedicate this thesis to my father Jack and mother Eileen in whose footsteps I followed into nursing.

Abstract

Background: Adverse events associated with surgical procedures can result in patient disability, death, or increased length of stay and reducing or eliminating adverse events is a top priority for patient safety. A major part of the perioperative nursing role is securing patient safety, yet adverse events continue to occur and patients continue to suffer harm. In the messy reality of the practice setting, perioperative nurses at times work in ways other than following the rules and standards that have been developed to support safe practice. This may have potential unintended consequences for patient safety. The way that perioperative nurses work and respond and adapt to the challenges in the workplace and the competing goals to 'get the job done', is the focus of this study.

Purpose: The purpose of this study was to develop a substantive theory to explain the ways that perioperative nurses work to get the job done and the factors that influence their decisions to deviate from standards and rules.

Methods: Between 2015 and 2016, a constructivist grounded theory study was conducted that included 56 hours of observation of practice and 10 hours of in-depth semi-structured interviews. Five RNs and one EN working in operating theatres at a public and private hospital in Tasmania participated in the study.

Findings: Emerging from my research was the substantive theory that perioperative nurses *'reshape their practice in response to being pressured and feeling pressured to get the job done'*. Whilst the participants mostly complied with standards and rules and expressed a genuine desire to follow them, there were circumstances where they made a conscious decision to work in other ways. Factors within the context in which perioperative nurse's practice can both constrain and enable practicing in accordance with the rules and these constraining factors can lead to

being pressured and feeling pressured which in turn constrains practicing in accordance with the rules

Discussion: Decision-making underpins practice and perioperative nurses employ experience and clinical judgment in making decisions about the way they work. Whilst working in ways other than following the rules is intentional it is not done with the intention to break the rules, rather it is for another purpose; that is to improve patient outcomes and team and organisational performance. The emergent theory adds to our understanding of the role that organisational, team, individual characteristics and the ambiguity/clarity of rules, tasks and responsibilities play in generating pressure and creating an environment more vulnerable to working in ways other than following the rules.

Implications: Despite potential benefits to the patient, the team and organisation, decisions to deviate from standards and rules may result in unsafe practice and the potential for patient harm. Lack of documentation of the deviations and continuing absence of professional conversations around this issue inhibits our capacity to learn from work as done. Opportunities to improve systems and processes that enhance patient safety and to amend standards and rules to reflect the reality of practice is lost and the potential benefits remain hidden. Further research on capturing and scrutinising the potential benefits of deviating from rules and standards with the aim of keeping patients safe, meeting organisational demands and progressing professional practice will be a natural progression from this research study.

Conclusions: This theory advances the perioperative nurse's perspective on responding to 'being pressured' and 'feeling pressured' in clinical practice. The theory is relevant to perioperative nurses, employing organisations, professional bodies, education providers and researchers who seek to better understand the messy reality of practice; develop and implement strategies to address factors that constrain following standards and rules; close the gap between work as imagined and work as done and ultimately make health care safer.

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Chapter 1: Introduction

Background and context

Towards the end of an operation, the first surgical count was completed and identified as being correct. The surgical team proceeded to close the wound. A standard second count was undertaken which identified a missing surgical pack. A search of the immediate area was undertaken and an x-ray was requested to determine if the pack had been left in the abdominal cavity. A surgical pack was located on the floor and the team concluded this to be the 'missing pack'. The surgeon completed the procedure and the patient was transferred to the post-operative recovery unit. In the recovery unit, an x-ray was undertaken which revealed the missing pack in-situ. The patient returned to theatre for removal of the pack.

What were the major contributing factors?

1. The pack was counted while it was still within the surgical cavity and announced correct without visualisation/validation by the second person responsible for the surgical count. This is contrary to the standard practice, which requires two staff to observe/validate the surgical count.
2. The procedure was concluded on the assumption that the count was correct when a pack was found on the floor. A standard re-count was not completed prior to wound closure and transfer of the patient to the recovery unit (Victorian Government 2014).

This vignette highlights two concerns that have driven this research. Firstly, despite concerted efforts to make surgery safer patients continue to be harmed during surgery and secondly, notwithstanding the presence of rules and standards that support safe practice, standard practices are not always followed.

More than 234 million operations take place globally each year with complications of surgery common and often preventable (Haynes et al. 2009). Adverse events can lead to patient disability, death, or increased length of stay imposing a significant burden on the health care system, the patients and their families. In response to growing concerns, interest has grown in how and why adverse events occur during surgery and how to make the patient's perioperative journey safer.

There are several perioperative adverse events that are recognised as being amongst the top ten priorities for patient safety including, wrong patient/wrong procedure/wrong site surgery; unintended retained instruments or other material; surgical site infection; implanting of incorrect prostheses; surgical fires; burns from energy devices; pressure injuries and specimen management errors. The perioperative nurse has a significant role to play in detecting and preventing these adverse events by carrying out a range of clinical activities to ensure the provision of a safe environment for patients, thereby minimizing the risk of harm. A major focus of perioperative nursing is on patient safety; however adverse events continue to occur and patients continue to suffer harm

My own personal knowledge and experience in the clinical setting coupled with literature on this topic supports the premise that whilst we know that there are standards and rules that inform and govern practice, nurses at times adopt ways 'other' than following the rules 'to get the job done'. These ways of working are variously identified as violations; deviations; rule breaking; rule bending; cutting corners; shortcuts and workarounds. What is evident from reviewing the literature is a lack of clarity in definition and inconsistency in application of these terms with some of these ways of working being considered acceptable and becoming the norm. The risk however is that these ways of working may have unintended consequences for the patient. That is deviating from rules and standards may lead to an adverse outcome for the patient.

Perioperative nurses are continually balancing the imperative to deliver safe care with other demands in a complex, dynamic and rapidly changing environment. The delivery of high quality nursing care to attain safe patient outcomes requires sound clinical decision making, which in turn is based on making an accurate judgment on the most appropriate course of action to take in each situation. The question is

whether in responding to competing goals and demands, perioperative nurses work in ways that deviate from safe practices that can have the potential to lead to inadvertent patient harm.

Statement of purpose and research questions

The aim of this research was to explore the ways that perioperative nurses work in a complex and demanding environment where there are competing pressures to get the job done and to develop a substantive theory that interprets and explains the findings.

This study explored the ways that perioperative nurses worked from the perspective of the nurses themselves, using a constructivist grounded theory approach as the research method (Charmaz 2014). The primary research question was 'What are the ways of working in perioperative nursing and the implications for patient safety and nursing practice?' The following secondary questions support the primary question:

- What are the different ways of working in perioperative nursing?
- What are the conditions that underlie the different ways of working?
- What influences the nurse engaging in different ways of working?
- Are perioperative nurses mindful of working in different ways?
- What are the implications for practice and patient?

The intentions of the study were to:

1. Describe the experiences, thoughts and feelings of perioperative nurses as they go about their daily activities.
2. Theorise about the phenomenon the research uncovered to enhance our understanding of the way that perioperative nurses work and the way they respond to the competing demands and pressures to get the job done.

Research approach

My research uses qualitative enquiry from a constructivist and interpretive paradigm to better understand the world within which perioperative nurses work. Grounded theory seeks to discover issues that are important to specific groups of people and develop theory to give meaning to those issues. The grounded theory method is therefore eminently suited for this research study, which aims to understand and give meaning to the issues faced by perioperative nurses as they go about their work. The constructivist grounded theory approach acknowledges the knowledge, values and views that the researcher brings to the research enabling the researcher to be an active participant.

56 hours of observations, 10 hours of in depth interviews and memos written by the researcher were the primary methods of data collection along with relevant information from the literature. Information from the literature was collected through extensive searches of library databases and the web; reference lists of key articles and from presentations attended and readings provided in units and workshops attended through the doctorate program. This data subsequently formed the basis for the overall findings of this research.

The researcher

I undertook my hospital-based training in the UK in the late 1970's, discovering perioperative nursing in the third year of training and subsequently developing a passion for this specialised area of nursing. Clinical practice, post-graduate education in the field and active engagement with state and national professional bodies followed. Notwithstanding periods of employment in nursing education, management and hospital administration, this passion has remained throughout my career.

My interest in risk management began following a presentation I attended in Singapore in 2004, of the findings of the Quality in Australian Health Care Study by Wilson and Runciman (1995). At the time, I was a Perioperative Services Manager. It struck me then, that everything a perioperative nurse did from checking a patient into theatre to discharge from recovery was about managing risk. In fact, perioperative risk management begins with the booking of the patient onto a theatre list. The consequences for the patient, staff and organisation, when risks are **not** effectively managed became more apparent to me as a Director of Nursing and then Chief Executive Officer. I have maintained a keen interest in patient safety in the operating theatre and the contribution the perioperative nurse makes to keep patients free from harm throughout their perioperative journey because of these experiences. The topic for a thesis was therefore not hard to find.

Rationale and significance of the research

The rationale for this study stems from my desire to understand why perioperative nurses engage in different ways of working; why they do not always practice in accordance in rules and standards; and what the implication of this might be for patient safety and professional practice. Practices that deviate from rules and standards may have potential unintended consequences for patient safety. Conversely, they may offer creative and innovative solutions to practice issues and better and more efficient ways of working. Breaking the silence about rule breaking in the practice setting and describing the factors at play when perioperative nurses make decisions about the way they practice will contribute to our understanding about an area that has largely remained hidden from view. A better understanding of the underlying mechanisms and processes that contribute to and/or underpin rule breaking and deviations from practice will assist in informing the development of strategies to redress this situation. Further work on capturing and scrutinising the potential benefits of deviating from rules and standards with the aim of keeping

patients safe, meeting organisational demands and progressing professional practice will be a natural progression from this research study.

Thesis structure

The thesis is presented in 7 chapters. This chapter introduces the research topic covering the purpose of the study and research questions; the approach taken to conduct the research; the rationale and significance of the research; and situates myself as the researcher within the area of study.

Chapter 2 delivers an overview of the relevant literature and positions the research question in the context of the literature and current theoretical understandings. The chapter discusses the genesis of the patient safety movement; the nature of perioperative adverse events and how and why they occur; the role that human factors and systems play in adverse events; and the ways that perioperative nurses work to get the job done.

Chapter 3 expounds the methodology and design of the research study and data collection and analysis procedures and processes. The research study is positioned within the qualitative paradigm with the focus on the constructivist grounded theory approach described by Charmaz (2014). Constructivist grounded theory research methods are explicated including the criteria against which the research is evaluated. Data collection methods and data analysis procedures are described and relevant ethical considerations highlighted.

Chapters 4 and 5 present the findings from the research under the headings of the context within which perioperative nurses practice and the factors that enable or constrain practicing in accordance with rules and standards; the phenomena

experienced by the participants as they strive to get the job done; and the process in which they engage in response to the phenomena experienced.

Chapter 6 provides the analysis and discussion of those findings under the same headings of context, phenomena and process and renders the substantive theory that emerged from the research.

The final chapter highlights how the research question was answered and the broader implications of the study findings for patient safety and perioperative nursing practice. Several recommendations to address the findings are proposed along with opportunities for further research to make patient care safer.

Summary

My interest in and passion for perioperative nursing has been present throughout my career. Knowing that patients continue to suffer adverse events during their surgical experience and that unsafe practice contributes to some adverse events led me to consider the nature of the relationship between practice and patient outcomes. Of specific interest to me was to better understand through the eyes of the perioperative nurse, why standard practices were not always adhered to and what was driving or influencing their decisions to follow or not follow the rules. This research explores the ways that perioperative nurses work in what is a challenging environment, laying bare the messy reality of their practice world and bringing to life the landscapes of their experiences.

Chapter 2: Keeping patients safe

The purpose of this chapter is to provide an overview of the relevant literature and position the research question in the context of the literature. This chapter will critically evaluate the literature locating the research problem in the wider context of patient safety. It will provide a broad perspective on the issue of patient safety and how and why adverse events occur, narrowing down to the available specialist literature pertaining to the specific issue of 'ways of working' in perioperative nursing and the implications for patient care and perioperative nursing practice.

This chapter will discuss the role that rules, standards and norms play in supporting safe practice along with the reasons why deviations from rules and standards occur. To better understand the work of perioperative nurses and to provide context for the reader, the chapter will include a description of the role of the perioperative nurse along with the key activities perioperative nurses perform to keep patients safe.

This review gathers literature from academic and scholarly articles in professional journals obtained using key word searches in the University of Tasmania (UTAS) Library databases and web searches. Reference lists from key articles have provided an additional source along with key author searches, textbooks, reports and presentations, selecting items from a cross section of disciplines including nursing, perioperative nursing, medicine, public health and quality and safety, based on relevance to the research problem and the research question. Two major systematic reviews on the concept of workarounds from the United States (Halbesleben & Rathert 2008) and Australia (Debono et al 2013) provided access to contemporary peer reviewed published articles and research studies pertaining to the research question. The literature review for this chapter was predominantly conducted over a

period of 9 months from May 2013 to Feb 2014. Engaging in the process of collecting and analysing data led to further searching of the literature to better understand what was happening and inform theorising. This latter literature has been incorporated throughout Chapter 6: The substantive theory.

The review will firstly examine the genesis of the patient safety movement and appraise the studies undertaken to determine the frequency and nature of adverse events both internationally and nationally. An examination of the literature on the nature of perioperative adverse events and a critique of the literature on how adverse events and errors occur with particular focus on Human Factors research and the emerging literature on the role of safety systems in health care will follow. The role of non-technical skills encompassing teamwork, communication, leadership, situational awareness, anticipation, forethought, task management, decision-making and the ability to cope with pressure will be discussed. The literature review will also explore organisational influences on the ways that perioperative nurses work. Finally, current literature and research on the ways of working and their potential implications for patient safety and practice in the operating theatre are critiqued with specific emphasis on the gaps in current knowledge that this thesis aims to address.

Patient safety

Haynes et al. (2009) estimate that hospitals perform 234 million operations each year with complications of surgery common and often preventable. The rate of complications varies between studies with reports of perioperative death rates of between 0.4 - 0.8% and complications of 3 - 17% (Anderson et al. 2013; Haynes et al. 2009; Leape et al. 1991; Wiegmann et al. 2007; Wilson & Runciman 1995). Given the magnitude of surgical procedures performed around the world and the rate of death and complications, interest has grown in the last three decades as to why adverse

events occur during the perioperative period and how to make the patient's perioperative journey safer.

The patient safety movement first began in the US in the early 1980s driven mainly by increasing malpractice claims (Leape et al. 1991). The seminal 1984 Harvard Medical Practice Study II (Leape et al. 1991) identified 3.7% of hospitalised patients with disabling injuries of which 28% were due to negligent care and that 48% of the adverse events were associated with an operation. Of significance was the finding that errors in management accounted for 58% of adverse events and half of these events were preventable. The Utah and Colorado Study (UTCOS) was replicated by Thomas et al. (2011) who examined the incidence of adverse events in 1992 and found similar results to those in the Harvard study.

In 1992, the Quality in Australia Health Care Study (QAHCS) was initiated to determine the extent of unsafe healthcare in Australia. This ground-breaking study reviewed a random sample of 14,179 medical records and results showed an adverse event rate of 16.6% of admissions with 50.3% being associated with surgery (Wilson & Runciman 1995). The adverse event for the QAHCS was significantly higher than the 2.7% – 3.9% reported in the UTCOS.

Runciman (2000) compared the results of the QAHCS with that of the UTCOS (Thomas, EJ et al. 2000) which used a similar methodology to better understand the disparity of findings between the studies. He found several factors that influenced this disparity including methodological considerations, admission and discharge thresholds and under-reporting concluding that the results reflected the difference in aims of both studies. Notwithstanding this, Runciman (2000) contends that potentially preventable adverse events were occurring which is cause for concern.

In a critique of the paper written by Wilson and Runciman (1995), Hall (2002, p. 1) argues that the study drew 'extraordinary conclusions concerning the frequency and totality of hospital treatment derived injuries and fatalities'. He contends that the study had several shortfalls in the areas of definitions, classifying decisions, sampling and mathematical foundations leading to his conclusion that the study overestimated the rate the adverse events and could not be used to extrapolate the findings at a national level.

Using the QAHCS, data Kable, Gibberd and Spigelman (2002) studied the adverse event rate for surgical patients, associated disability, preventability and the major risk factors. Consistent with the aforementioned studies they defined an adverse event as 'an unintended injury or complication which results in disability, death or prolongation of hospital stay and is caused by health care management rather than the patients disease' and preventability as 'an error in management due to failure to follow accepted practice at an individual or system level' (Kable, Gibberd & Spigelman 2002, p. 270).

The study found that the rate of adverse events in surgical admissions was 21.9% with 13% resulting in permanent disability and 4% in death and that 48% of adverse events were preventable. The adverse event rate associated with surgical admissions was found to be higher than the rate for medical admissions (13.3%) suggesting that surgery brings with it additional risk of harm, supported by their finding that 75% of surgical adverse events were a result of the operation (Kable, Gibberd & Spigelman 2002).

A significant deficit in these studies lies in the absence of detailed information about the factors that contribute to adverse events during surgery and the types of error that occur within the perioperative setting. For example the QAHCS study reported

that 53% of adverse events were associated with absence of or failure to use policy, protocol or plan (Wilson & Runciman 1995) but the particular policies or protocols were not mentioned. 25% of the reasons for failure to prevent an adverse event involved failure to take precautions to prevent accidental injury (Wilson & Runciman 1995) but the types of accidental injury incurred by the patient were not detailed. The studies concentrated heavily on medical practitioners and overlooked other members of the surgical team. The types of performance issues that contributed to adverse events were not discussed in any detail. This may be due to difficulty in extracting this information from the medical record and the reluctance of the reviewer to give an opinion on whether another practitioner had made an error.

A systematic review of 14 retrospective records studies (including the Australian studies mentioned previously) by Anderson et al. (2013) found that non-operative errors were more frequent than errors in surgical technique. Non-operative errors included incorrect or delayed diagnosis and treatment associated with monitoring, medication, anaesthesia and judgment. Errors in surgical technique also included errors in operative management. This review did not contribute any additional information in relation to performance or system errors or discuss the specific perioperative events that can lead to patient harm such as wrong site, wrong person, wrong procedure surgeries, foreign bodies left in a patient during surgery and other perioperative events.

Whilst there is debate about the accuracy of the rate of adverse events there is consensus that adverse events do frequently occur and that many are preventable. These studies have been successful in bringing the issue into the public domain and in raising the level of awareness and debate on how best to tackle the problem of iatrogenic injury. Another positive contribution has been in the identification of risk

factors for adverse events including age and length of stay and the types of clinical management and systems errors that contribute to adverse events.

The next section will discuss the nature and significance of adverse events specific to the perioperative setting.

Perioperative adverse events

Adverse events that are of particular relevance to perioperative nursing include wrong patient/wrong procedure/wrong site surgery; retained surgical items; breaches in asepsis; burns from energy devices; surgical fires; pressure injuries; specimen management errors and implanting of incorrect prostheses (Steelman & Graling 2013a; Steelman, Graling & Perkhounkova 2013b).

Known as 'never events' in the UK, 'sentinel events' in the US and Australia and 'serious adverse events' in New Zealand, the common definition is an event that causes serious harm and is generally accepted as being preventable (AIHW & ASQHC 2007; Health Quality and Safety Commission 2013; NHS Department of Health 2012; The Joint Commission Sentinel Event Unit 2013). A list of eight such events was introduced into the UK in 2009 and the list has subsequently grown to include 25 types of events with wrong site surgery being the most frequently occurring event (Health Quality and Safety Commission 2013). The Joint Commission Sentinel Events Unit (JCSEU) lists 28 sentinel events including wrong patient, wrong site, wrong side surgery, un-intended retention of foreign object and anaesthesia events (The Joint Commission Sentinel Event Unit 2013). In Australia, there is a national core set of eight sentinel events including procedures involving the wrong patient or body part and unintended retained instruments or other material (AIHW & ASQHC 2007).

The next section will outline the nature and significance of these adverse events to provide the context for future discussion on the role of the perioperative nurse and the implications of ways of working for practice and patient safety.

Wrong patient/wrong procedure/wrong site surgery

Wrong patient/wrong procedure/wrong site surgery is the fourth commonest sentinel event after patient suicide, operative and post-operative complications and medication errors (Hanchanale et al. 2014) and has been identified as being the top safety priority for perioperative nurses (Steelman & Graling 2013a).

In the UK in 2011/2012, 70 cases of wrong patient/wrong site/wrong procedure surgery were reported (NHS England Patient Safety Domain 2014); in the US between 2004 and 2011, 1037 incidents (The Joint Commission Sentinel Event Unit 2013) and in New Zealand in 2012-2013, 8 cases were reported (Health Quality and Safety Commission 2013).

In 2007 the Australian Institute of Health and Welfare (AIHW) and the Australian Commission on Safety and Quality in Health Care (ACSQHC) published the first joint report on sentinel events in public hospitals for the period 2004/2005 (AIHW & ASQHC 2007). This report identified 53 incidents of wrong patient/wrong procedure/wrong site surgery representing 41% of all sentinel events. As these figures do not include sentinel events from private hospitals the incidence of wrong surgery in Australia is likely to be much higher than that reported.

A US study by Clarke et al. (2007) reported 427 incidents of near misses or surgical interventions started involving wrong patient, wrong procedure, wrong site with 83 patients having an incorrect procedure performed to completion. Interestingly they

found that on 31 occasions, a formal time out procedure did not prevent the wrong surgery. A time out procedure is a component of the World Health Organisation (WHO) initiative to promote safer surgery and reduce deaths and complications from surgery (Jones 2013). The procedure requires the surgical team taking 'time out' from their other tasks to go through the surgical safety checklist prior to commencing the operation (Haugen et al. 2013). It involves the whole team confirming that the correct patient is having the correct procedure on the correct site along with checking other critical information such as anaesthetic concerns and allergies (Jones 2013).

Unintended Retained items

An unintended retained item is an instrument, surgical swab/sponge, needle or any other item unintentionally left inside a patient on completion of the surgical procedure. Surgical sponges are the most common item left behind and the abdomen, pelvis and thorax the most frequent sites (Feldman 2011). The incidence of unintended retained items has been estimated to be between 1 in 1000 operations to 1 in 18000 operations (Feldman 2011; Gawande et al. 2003; Zahiri et al. 2011).

A review of 54 medical records that were associated with a retained item filed with a large malpractice insurer in the state of Massachusetts between 1985 and 2001 found 69% of the retained items were surgical sponges and 31% instruments. In examining the characteristics of the 54 cases he found that 54% of retained items had been left in the abdomen or pelvis, 22% in the vagina, 7.4% in the thorax and 17% elsewhere including spinal canal, face, brain and extremities (Gawande et al. 2003).

161 cases of retained foreign object post-surgery were reported to the UK Department of Health in 2011/2012 (NHS England Patient Safety Domain 2014). The Joint Commission Sentinel Event Unit reported 875 incidents of unintended retention of a foreign body (The Joint Commission Sentinel Event Unit 2013) and in New Zealand in 2012-2013 there were 13 incidents of retained items (Health Quality and Safety Commission 2013). In Australia for the period 2004/5 there were 27 reports of retained items constituting 20% of all reported sentinel events (AIHW & ASQHC 2007). These figures do not include sentinel events from private hospitals and numbers are therefore likely to be higher.

Surgical Site Infection

A surgical site infection (SSI) is an infection arising following surgery and specifically related to the surgical site. The overall incidence of SSI is 5-15% and they account for between 10-30% of all hospital acquired infections (Coleman et al. 2010). Surgical site infections result from contamination by the patient's own flora and or from organisms on staff and/or in the environment (Spelman 2002). To minimise the risk of SSI, surgical procedures require strict adherence to sterile technique (Simko 2012). Breaks in sterile technique have been shown to cause infection, pain and increased length of stay (Hopper & Moss 2010) and can be an economic burden (Coleman et al. 2010).

Incorrect implants

Implanting an incorrect prosthesis or component can significantly affect the outcome for a patient. In the UK this is known as ‘component size mismatch’ and is a designated Never Event (Pata 2016). Using a device that is the wrong size or does not properly match other components can lead to soft-tissue irritation, impingement, pain, decreased motion, poor function and ultimately, a second operation may be required (Lowry, McGrath & Mihalko 2014). Statistics on the

incidence of implanting incorrect prostheses are not readily available in Australia. However 41 incidences of wrong implant/prosthesis were reported to the UK Department of Health in 2011/2012 (NHS England Patient Safety Domain 2014) and there is no reason why this event would not occur with similar frequency in other countries including Australia.

Burns from energy devices

The use of diathermy has become an integral part of surgical technique since the 1920's. Surgical diathermy or electro cautery is the application of a high-frequency electric current to biological tissue to cut or coagulate tissue to achieve haemostasis (Saaiq, Zaib & Ahmad 2012). It is estimated that diathermy is used in 3 million procedures in the UK annually (Medicines and Healthcare Products Regulatory Agency 2000). Although widely used, diathermy is not without risk to the patient and may cause burns, electrocution, surgical fires and smoke inhalation (Saaiq, Zaib & Ahmad 2012).

Data on the incidence of burns in Australia and overseas is not readily available but the UK there were 512 incidents involving electro surgery reported from 1998 to 2001 (Medicines and Healthcare Products Regulatory Agency 2000), largely to do with equipment failure (Beesley & Taylor 2006).

Surgical fires

Surgical fires occur rarely but can have catastrophic consequences for the patient. Fires are a risk due to the presence of the three elements of the fire triangle. First, an ignition source such as electro cautery instruments, fibre optic light sources and light cables, argon beam coagulators, electrical equipment and power tools that can produce sparks (Watson 2006). Second, a fuel source such an alcohol based surgical

prep solution (Rocos & Donaldson 2012). The third element is oxygen, which can sequester beneath the drapes. The most common ignition sources are electro surgery devices, lasers and fibre optic light sources (Beesley & Taylor 2006; Knudson 2013; Saaiq, Zaib & Ahmad 2012).

The rate of surgical fires around the world is difficult to determine but two reports from the US indicate a range from 50 and 200 surgical fires every year with a mortality rate of 20% (Zahiri et al. 2011) and up to 650 surgical fires occur each year, with up to 5% causing death or serious harm (Rocos & Donaldson 2012). A 2012 report from the Pennsylvania Patient Safety Authority (PPSA) analysed 70 reports of surgical fires submitted to its database from July 1, 2004 to June 30, 2011. The data indicated a downward trend in the number of fires from 2010 to 2011 which could be attributed to greater awareness and the implementation of strategies to minimise this risk (Mathias 2013).

Mishandling of Specimens

There is scant literature on the rate of incidents involving mislabelled or lost specimens. The PPSA received 30 reports in 2005 involving specimens that were lost between retrieval and the laboratory (Anon 2008; Pennslyvania Patient Safety Authority 2005). A study on specimen identification errors at the John Hopkins Hospital in the US found an error rate of 4.3 per 1000 surgical specimens (Anon 2008). Mislabelled or lost specimens may result in inappropriate or unnecessary treatment and may delay diagnosis.

Positioning injuries

Patients can and do sustain injuries resulting from positioning for their surgical procedure, from organ damage to direct nerve damage. Whilst the actual prevalence is not known, closed claims for negligence offer an insight into the

nature and extent of the problem. Of more than 1500 claims reviewed against anaesthetists in the US, 15% were for nerve injury (Gerken 2014). A number of cases of negligence for nerve and tissue damage from positioning during surgery are discussed by Murphy (2004) who reiterates the importance of perioperative nurses following standards for positioning to avoid patient harm and possible litigation.

The preceding overview of the common injuries sustained by patients undergoing surgery highlights the need for all members of the surgical team to be cognisant of all the risks associated with surgery, not just those that are directly related to the surgical procedure itself. The term 'adverse event' describes such injuries and is defined as:

> *An unintended injury or complication, which results in death, disability or prolongation of hospital stays and is caused by healthcare management rather than the patient's disease (Kable, Gibberd & Spigelman 2002, p. 2).*

This definition makes clear the role that healthcare management plays in causing an unintended injury. Conversely, healthcare management can also detect and prevent adverse events from occurring. The detection and prevention of adverse events is a key role of the perioperative nurse.

The role of the perioperative nurse in keeping patients safe

Clearly defining and articulating the role of the perioperative nurse has been problematic throughout history and there is scant literature on this specific topic. The different ways that the role has historically developed throughout the world and the introduction of various support roles to complement/replace some traditional aspects of the role has compounded this (van Beuzekom & Boer 2006). For example in the US and the Netherlands, there are surgical technicians so nurses now rarely scrub and in the UK there are nursing and non-nursing pathways to becoming an operating department practitioner (Jackson et al. 2015; Thomas, J & Warwick 2015; van Beuzekom & Boer 2006). In Australia, there are differences in the perioperative nursing roles between states with some states and/or hospitals restricting the role of the enrolled nurse (Davies 2005).

The costs associated with providing a full nursing perioperative workforce has been one of the drivers for the introduction of support roles into the operating theatre overseas along with shortages of medical personnel and lack of availability of medical staff to assist during surgery (McGarvey, Chambers & Boore 2000). Australia is not immune to the push to introduce non-regulated workers into the operating theatre and it is therefore an imperative that Australian perioperative nurses clearly define their role to retain their relevance as integral to the delivery of safe patient care.

When looking for a clear definition of perioperative nursing, it quickly becomes evident that one is hard to find. This points to ‘an inherent complexity in the role that has made it difficult to define’ (McGarvey, Chambers & Boore 2000, p. 1096). McGarvey, Chambers and Boore (2000) found that perioperative nurses tended to describe their role in terms of the functions they performed rather than through a philosophy of care. This approach appears to be the one taken by the Australian

College of Operating Room Nurses (ACORN) who publish competencies for the perioperative nurse and statements outlining the key elements of anaesthetic, scrub, circulating/scout and recovery nursing roles, but not an overall definition or underpinning philosophy of perioperative nursing (ACORN 2016).

McGarvey, Chambers and Boore (2000), explored the historical development of the role of the perioperative nurse and the influence of cultural, socio-political and economic contexts on perioperative nursing practice. The study by Sigurdsson (2001) explored what it meant to be a perioperative nurse. Of specific relevance to this discussion on the role of the perioperative nurse is the pattern she identified as 'defending this place'. Within this pattern, Sigurdsson (2001, pp. 211-212) identified the themes: 'How do I describe it?'; 'Is it nursing?'; 'It is nursing'; 'the art of perioperative nursing'; and 'changing times'; as representative of the way the nurses viewed their work and their identity. This clearly indicates the difficulty that perioperative nurses have in clarifying their role within the traditional definition of nursing. This leads to difficulties with defending their place as nurses within the perioperative setting, raising fears about the future of perioperative nursing practice and making it even more difficult to clearly define their role and protect their professional space.

The original role of the perioperative nurse in the 1800's was care of instrumentation, preparation of the environment and assisting the surgeon at the table, all of which required 'diligence and obedience' and was therefore ideally suited to nurses (McGarvey, Chambers & Boore 2000, p. 1093). This role has expanded to recognise the 'centrality of the patient' to the perioperative nursing role along with continuing the role of caring for and managing increasingly complex surgical instrumentation and equipment (Bull and Fitzgerald 2006, p.7). The focus on instrumentation, equipment and the environment as an adjunct to delivering direct

care to the patient has led to some criticism of the perioperative role being more technical than nursing. However Bull and Fitzgerald (2006) found in their ethnographic study that perioperative nurses blend traditional nursing care and technological ability in their practice and ask why a technical focus is criticised when it ensures safe patient care? The activities that perioperative nurses perform pre, intra and post procedure facilitate the provision of a safe environment for patients and helps prevent potential complications (Rauta et al. 2013). Another key ingredient of quality care is coordination (Matlow et al. 2006) and the successful completion of any operating list requires a high level of skills in organisation, time management and coordination. The circulating or scout nurses undertakes these activities in the theatres where this research was conducted. In other hospitals, it may be the scrub nurse.

The literature is consistent in identifying that perioperative nurses have a key role in securing patient safety and preventing mistakes (Alfredsdottir & Bjornsdottir 2008; Beyea 2008; Chard 2010; Farrell & Davies 2006; Joy 2009; Kleinbeck 1996; Lamberg, Salantera & Junttila 2013; McNamara 1995; Rauta et al. 2013; Steelman & Graling 2013a) and consider these to be both their responsibility and within their locus of control (Chard 2010). The top patient safety issues identified by perioperative nurses include wrong site/procedure/patient surgery, retained surgical items, aseptic aspects of care, positioning and pressure injuries, specimen management, surgical fires and burns from energy devices (Rauta et al. 2013; Steelman & Graling 2013a). Management of implants has also been recognised as an emerging risk (Lowry, McGrath & Mihalko 2014). The literature provides research and evidence based actions to minimise the risk of patient harm and these have been used to inform the standards developed by ACORN (ACORN 2016). These standards are closely aligned with similar standards in the UK, US and Canada and represent the accepted standard of professional practice for perioperative nurses in Australia.

The key activities in relation to each of the safety issues identified by perioperative nurses will now be summarised to provide the reader with an understanding of the actions that the perioperative nurse undertakes to minimise the risk of harm during a patient's perioperative stay. The following sections will reference the relevant ACORN standard acknowledging that each standard has a set of references evidencing the sources from which the standard was developed.

Patient identification

A key perioperative nursing activity aimed at reducing patient harm is to confirm that the correct patient is receiving the correct procedure on the correct site. These checks commence on arrival of the patient into theatre when the ward nurse hands over the patient to the perioperative nurse. It is therefore critical that the perioperative nurse remains vigilant throughout this process and the Team Time Out (TTO). The introduction of the World Health Organisation (WHO) Surgical Safety Checklist (World Alliance for Patient Safety 2008) has provided the framework for a process that involves people within the operating theatre taking a 'time out' from their other tasks to check among other things, patient identity and document the outcome from the check. Patient Identification is one of the 10 National Clinical Standards developed by the Australian Commission on Safety and Quality in Health Care (ACQSHC 2012) and is a standard against which hospital performance is measured for accreditation. The tool used may vary between hospitals in both format and content but the underlying principles are consistent; that the surgical team confirms that the correct patient is having the correct surgery on the correct site, before surgical incision and ideally before being anesthetised. The ACORN Position Statement: Surgical Safety (ACORN 2016) endorses the WHO Surgical Safety Checklist. The team member responsible for initiation of the protocol varies between hospitals and teams. Despite these variations, it is the role of the

perioperative nurse to participate fully in the team time out and take a clinical leadership role to ensure adherence to the protocol.

The surgical count

The major perioperative nursing activity for avoiding an unintended retained surgical item is the surgical count (ACORN 2016). This is a joint responsibility of the scout/circulating nurse and scrub nurse, in collaboration with the rest of the team and again requires vigilance. The pertinent actions involve the scout/circulating nurse and the scrub nurse counting out loud together the items listed on the count sheet and the instrument tray lists prior to commencement of surgery, on closure of a cavity and again at skin closure. Counting of items added during the procedure occurs in the same manner. It is the specific role of the scrub nurse to inform the surgeon of the status of the count at each closure phase and the specific responsibility of the scout nurse to accurately document the count.

The tools for recording the count vary between hospitals from paper based forms which may also incorporate the documentation of other aspects of perioperative care, to electronic forms which are often part of a broader electronic patient management system. ACORN Standard: Management of Accountable Items Used During Surgery/Procedures in the Perioperative Environment provides guidance on the procedure to be followed (ACORN 2016).

Aseptic aspects of care

The contamination of items within the sterile field can lead to surgical site infection. The role of the perioperative nurse is to 'apply professional conscience to protect the patient by performing all working steps to control asepsis' (ACORN 2016, p.198). There are a significant range of activities that the perioperative nurse performs to assure asepsis including the wearing of correct theatre attire, scrubbing gowning

and gloving, skin preparation, opening sterile supples and the creation and maintenance of the aseptic field. The application of wide range of knowledge underpins these practices. For example, the opening of a sterile item requires knowledge of sterilising methods, how to recognise that an article is sterile, how to open a sterile article without contaminating the item or the aseptic fields and what to do in the case of contamination. The ACORN standards that support the assurance of asepsis include: Asepsis; Perioperative Attire; Surgical Scrubbing, Gowning and Gloving; Skin Preparation of the Patient; Reprocessing of Reusable items: Cleaning, Packaging and Storage of Sterile Supplies and Single Use Items (ACORN 2016).

Management of Implants

Implants required for surgery are prepared before the procedure and opened once the surgeon requests the specific type and size of the component. The scout nurse checks implant details with the surgeon and shows the implant box to the scrub nurse before opening. Whilst there is not a specific ACORN Standard on this topic, hospital policies are widely in place to reduce the risk of component size mismatch with its associated patient safety and financial implications.

Use of diathermy

Correct application of the diathermy plate and connection to the diathermy machine is the responsibility of the scout/circulating nurse. Knowledge of the principles of electrical flow and using diathermy and other energy devices in accordance with manufacturer's instructions underpins this task. Surgeons preferences normally determine the setting and changes to settings during the procedure are made in response to surgeon request. Use of diathermy is underpinned by Standard: Electrosurgical Equipment (ACORN 2016).

Prevention of surgical fires

Presence of flammable gases, materials and solutions coupled with the use of heat producing devises such as diathermy and lasers substantially increases the risk of fire in the operating suite. All perioperative nurses have a role to play in the prevention of surgical fires and this role is underpinned by Standard: Fire Safety in the Operating Suite (ACORN 2016).

Specimen management

The perioperative nurse is responsible for confirming with the surgeon whether a specimen is to go to pathology, checking the medium in which to place the specimen, correctly labelling the specimens and ensuring the specimen is sent to pathology. Prerequisites for applying the Standard: Specimen Identification, Collection and Handling (ACORN 2016) are knowledge of care and handling of specimens, including container sizes, mediums and related safety issues.

Positioning for surgery

The ACORN Standards: Positioning the Patient for Surgery and Safe Patient and Manual Handling (ACORN 2016) provide direction for perioperative nurses to minimise the risk of harm to the patient from positioning or manual handling. Key actions taken by the perioperative nurse involve the assessment of patient risk factors and the use of positioning devices to provide surgical access for the surgeon whilst maintaining optimal body alignment and protecting the patient from pressure. These activities are underpinned by an in-depth knowledge of the surgical procedure and position, underlying pathophysiology which may impact on or be impacted by positioning and the appropriate positioning equipment and devices to use.

The role of the perioperative nurse is a socio-technological one with an emphasis on tasks and activities that keep patients free from harm during surgery. This section has identified the key role that perioperative nurses play in keeping patients free from harm during surgery through a range of tasks and activities underpinned by knowledge and practical expertise that minimise and manage potential risk.

Notwithstanding the actions taken by the perioperative nurse and the availability of standards, policies, procedures and protocols that support practice, incorrect surgical counts incidents continue to occur (Rowlands & Steeves 2010); patients sustain injuries from poor positioning (Murphy 2004); the inappropriate management of diathermy results in burns (Russell & Gaetz 2004; Saaiq, Zaib & Ahmad 2012; Webb, Balaratnam & Park 2003); surgical fires whilst rare, do strike (Rocos & Donaldson 2012; Watson 2006; Zahiri et al. 2011); specimens are mislabelled or go missing (Makary et al. 2007; Slavin, Best & Aron 2001); incorrect implants are selected and inserted (Lowry, McGrath & Mihalko 2014); patients suffer surgical site infections (Hopper & Moss 2010; Spelman 2002) and wrong patient, wrong procedure, wrong site surgery remains a significant issue (Clarke, JR, Johnston & Finley 2007; Hanchanale et al. 2014).

The next section will examine the role of human factors and other models to explain the role that humans play in adverse events.

Models to explain human error

From the 1940's to the 1980s the focus of understanding adverse events was centred on high risk industries like the aviation and nuclear power generation (Reason 1995). Since the sentinel Harvard Medical Practice study in 1984 (Leape et al. 1991), attention has shifted to understanding errors that lead to adverse events in health care and this has led to research into the human and organisational factors that impact on the provision of safe healthcare.

Because of the importance of Reason's work, particularly in understanding errors and violations and their potential to lead to adverse events, a detailed account of his definitions is provided in the following sections.

Human error and the Swiss cheese model of accident causation

An error is defined as the failure of a planned action to achieve its desired goal with further differentiation between slips (observable action) and lapses (failure of memory) (Reason 1995). When the action goes entirely as planned but the plan is inadequate to achieve its intended outcomes, this is a failure of intention and is termed a mistake. Mistakes can be rule based or knowledge based (Reason 1995).

Reason (1995) also differentiates between errors and violations with violations being deviations from safe operating practices, procedures, standards or rules. He argues that violations are deliberate in that the actions were intended but not the possible bad consequences. He goes on to propose that errors can be explained by what goes on in the mind of an individual but violations occur in a social context.

In considering how people contribute to accidents, Reason (1995) makes a third distinction, that is between active and latent failures. Active failures are unsafe acts (errors and violations) committed by the people at the sharp end whose actions can

and do have adverse consequences. Decisions taken at the higher levels of an organisation can create latent failures that may remain dormant only becoming evident when they combine with local triggering factors.

Human error is of course however not the sole contributor to adverse events. Reason (2005a) also highlights the role of the organisation or health care system in creating the latent factors which may lie dormant for a long time and when combined with active failures can lead to an adverse event occurring. He developed a model (also known as the Swiss cheese model of accident causation) to explain the aetiology of an organisational accident beginning with organisational processes, corporate decisions often shaped by economic, political and operational constraints which create the latent conditions within the system and lead to weaknesses in the organisations defences. These constraints flow down to the workplace and create the local error producing conditions including high workload, inadequate knowledge, ability or experience, inadequate supervision or instruction, fatigue, poor communication, teamwork deficiencies and low morale that promote unsafe acts. When unsafe acts are committed, they can breach the organisation's defences, resulting in an adverse event.

The factors that promote violations are less well understood and include lack of safety culture, lack of concern, poor morale, norms condoning violations, can do attitudes and apparently meaningless or ambiguous rules (Reason 2005). The distinction between errors and violations is of importance to this research in that violations are deliberate. In other words, there is intention behind the act, but the consequences of the violation may not be known. This research will also explore the presence of any norms that condone violations and further discussion will ensue under the section on ways of working.

A concern with the term 'human error' is that it focuses on the human component of system (Henriksen et al. 2008) and those who make errors are often viewed as being careless and culpable (Carthey 2013). Carthey (2013) argues that this approach does not improve patient safety and the expectation of error free behaviour is unrealistic. Kennedy (2004, p. 116) questions whether frontline human error tells the whole story arguing that 'creating a safer health system requires transitioning to a new paradigm of acceptance of human fallibility within organisations'. This approach takes the attention away from blaming the individual and shifts the emphasis to identifying the underlying latent conditions within the system. A question for consideration in this research is whether responsibility for human fallibility lies just with the organisation or whether there is some personal responsibility and accountability for fallibility?

Systems models - 'beyond Swiss cheese' *(Carthey 2013)*

The characteristics of the individual are only one component of a tiered model of factors which contribute to adverse events (Henriksen et al. 2008; Reason 2005). The role that the health system plays in errors and error prevention was highlighted in the seminal report 'To Err is Human: Building a Safer Health System' (Institute of Medicine 2000) with the key message conveyed being that factors that give rise to adverse events are systemic rather than the result of poorly performing individuals. Nurses are the last line of defence in a health system and are therefore the most vulnerable as they can inherit the sins of omission and commission of everyone else in the system (Henriksen et al. 2008).

The Swiss cheese model developed by Reason (2005a), is considered by some as the 'old view' of human error that fails to recognise the complexity of the health care system and shifts blame upstream to senior managers and regulators (Carthey 2013). There has been a recent paradigm shift to the 'new view' where safety is seen

as 'an emergent property of a system in which there are numerous trade-offs between safety and other goals' (Carthey 2013, p. 147). This new approach acknowledges organisational deficiencies and latent failures but also the abilities of the individuals within the system to adapt and respond to system changes (Carthey 2013). Her model of Safety Evolution and Erosion Enhancement more adequately describes how patient safety emerges in a complex system like healthcare. The model is based on lessons learned from other models. It concludes that a combination of systems and human factors can enhance or erode safety; that systems are dynamic and evolve over time; that safety is an emergent property; that we should focus and learn from what went right rather than being preoccupied with what went wrong and that humans migrate to and explore the systems safety boundaries.

System migration model

The system migration model is particularly relevant to this research as it provides insight into how deviations from rules become the norm and thus, the system drifts to the boundaries of safety.

The Herald of Free Enterprise[1] and Tokai-Mura[2] disasters are examples of accidents caused 'not by unintended errors but by deliberate deviations from rules and standards' that had occurred over a long period of time (Amalberti et al. 2006). Violations had become the norm and thus, there was a drift to the margins of safety. Amalberti et al. (2006) argues that violations are unavoidable because they are

[1] The Herald of Free Enterprise ferry took on water and sank as it left Zeebrugge harbour in 1987 resulting in considerable loss of life. The cause of this accident was that the staff did not fully close the back ramp before the ship left harbour to save time.

[2] The most severe nuclear accident since Chernobyl occurred in Tokai-Mura, Japan in 1999 when workers, anxious to finish their job at the conversion building, decided to use a larger tank to increase their performance when purifying and homogenizing uranium. This led to a critical concentration of product and the system exploded.

markers of adaptation to system changes. However, whilst unavoidable, violations can be managed. This model is important in the context of this research as it provides several perspectives on violations and a framework for understanding them.

How and why adverse events in the perioperative setting occur is complex. Recent studies have built on the work of the pioneers in patient safety, exploring in more detail the role of system failures, performance and other errors in contributing to perioperative adverse events. The following section will examine the factors present in the workplace that produce the conditions conducive to adverse events occurring.

Error producing conditions in the Operating Theatre

There is agreement in the literature that latent failures within the system create weaknesses in the organisation's defences that flow down to the workplace and give rise to the conditions that can lead to error (Carthey 2013; Henriksen et al. 2008; Reason 2005). Literature pertaining to these factors will be reviewed and critiqued and research from other areas of nursing will be included where appropriate.

Distractions and interruptions

The role of distraction and the effects of interruptions on the cognitive work of nurses have important implications for understanding the origins of medical errors and are particularly applicable in the operating theatre.

Disruptions and interruptions, including people entering and leaving the theatre, telephones and beepers, equipment failures and other work environment issues have been shown to adversely impact on workflow with one study finding interruptions occurring on average 9-10 times per hour (Antoniadis et al. 2013). The number of interruptions increases the number of miscommunications (Gillespie, B. M., Chaboyer & Fairweather 2012) and there is a strong link between the number of interruptions and surgical errors (Wiegmann et al. 2007). A study of distractions and interruptions by Healey, Sevdalis and Vincent (2006) found they interfered with the work of the team and affected team performance. Perioperative nurses identified distraction as a cause of error in a study by Chard (2010). Interestingly a quality activity by Slavin (2001) found that perioperative nurses were not distracted from following through on surgical specimen handling because of a lack of focus, rather, they felt that they had to choose among competing demands of patient care. Cases of negligence in the US have cited distractions such as the use of mobile devices and interaction with social media during procedures (Buckwalter-Poza 2014).

Culture, communication and teamwork

The influence of culture on patient safety has been studied extensively. It has recently come to the fore in the UK following the Bristol Royal Infirmary and Mid Staffordshire Trust enquiries where it was found that poor organisational culture contributed significantly to patient harm (Kaufman & McCaughan 2013). The Bristol Royal Infirmary report found that the hierarchical nature of workplaces within the healthcare system is a significant cultural weakness that can mitigate against teamwork (Kennedy, I 2001). Where a blame culture pervades the workplace, error reporting may be limited reducing opportunity for remediation (Chard 2010). Social structure within the operating room has been found to impact on performance of the surgical team along with lack of mediating norms, conventions and social relations to support and encourage communication, all of which have the potential to introduce latent threats into the system (Rydenfalt et al. 2012).

There is a significant emphasis in the literature on the role of communication and teamwork within the perioperative environment. Ineffective communication is a significant factor in sentinel events with up to 65% of events stemming from communication failures (Burnett, Norris & Flin 2012; Catalano 2008; Halverson 2011). Miscommunication or poor communication has been identified by perioperative nurses as being a cause of error (Chard 2010) and implicated in incorrect surgical counts (Rowlands & Steeves 2010), team effectiveness (Gillespie, B. M., Chaboyer & Fairweather 2012) and been found to compromise patient safety (Braaf et al. 2013; Braaf, Manias & Riley 2011).

Within the perioperative setting where communication is so vitally important for safe patient care; silence and power can be an underlying barrier to effective communication (Braaf et al. 2013; Gardezi et al. 2009). There are also structural barriers to communication such as workflows and processes, supply chains,

equipment and information systems that create an error-promoting environment (Fowler et al. 2008). Effective communication is influenced by culture (Kennedy, I 2001), social structures (Rydenfalt et al. 2012) and teamwork (McNamara 2010) and can enhance team activities such as participating in the surgical safety checklists (Gillespie, B. M. et al. 2016).

Personal and psychological factors

Personal and psychological factors may also promote the conditions in which errors occur. For example, Rathert et al. (2012) found exhaustion to be an antecedent to unsafe practice. Inexperience, lack of supervision, work overload and faulty judgement have also been identified as contributing factors along with having too many things to do at once (Chard 2010).

Personal accountability also has a role to play in preventing patient harm. Goldmann (2006) argues for a balance between blaming mistakes on systems and holding individual practitioners accountable for their actions, citing hand hygiene as an example where both systemic improvements and increased personal responsibility are required in order to reduce infections.

More recently, the focus of research has shifted to the specific behaviours of nurses operating within these highly complex, dynamic and rapidly changing healthcare systems to meet goals or achieve them more readily. The next section will review the literature on these behaviours or 'ways of working' against a background of the role that norms, standards and rules play in the delivery of safe care.

The role of norms, standards and rules in the delivery of safe care

Evidence based standards and protocols are safety tools developed to guide practice and deliver safe care. Norms on the other hand are an accepted standard or a way of behaving or doing things. Ways of working other than following rules and standards can create a latent risk factor for the organisation, resulting in a drift to the margins of safe practice (Amalberti et al. 2006). A rule is defined as 'one of a set of explicit or understood regulations or principles governing conduct or procedure within a particular area of activity' (Merriam-Webster Online Dictionary). Standards such as those developed by the Australian College of Operating Room Nurses (ACORN) can be considered an explicit set of rules that guide practice within perioperative nursing and can be used as a measure or norm against which practice is evaluated.

Reason (1997) argues that external and internal controls regulate the individual's behaviour in the workplace. Standards and rules are examples of external controls that prescribe what and how work should be done. There are also internal controls represented by the knowledge and skills of the individual based on training and experience. Together these controls limit the use of discretion and the variability of human behaviour thereby ensuring safer ways of working (Reason 1997). The implication here is that non-adherence to norms, rules and standards may compromise patient safety. Conversely where rules, policies and procedures are unavailable or deemed to be unworkable for the situation at hand, ways of working other than following the rules can be perceived as necessary to get the job done (Reason 1997).

The literature identifies a range of factors that contribute to rule breaking in the perioperative setting including emergencies, high workloads, poor workflows, productivity pressures, resource availability, deficient communication, inability to

deliver timely care, unfamiliarity with technology and lack of awareness of policies or poor understanding of content (Debono et. al 2013). Several studies have found deviations employed as ways of working around rules, policies and procedures (Debono et. al 2013; Halbesleben et al. 2008). The sheer volume of policies and guidelines; multiple rules on the same topic; naming, accessibility, length and complexity; poor version control and the trivial nature of some policies may have the unintended consequence of reducing compliance (Carthey et al. 2011).

Nursing is complex work and this complexity is derived from the changing condition of the patient; the need to coordinate multiple activities at any given time; avoidable factors unrelated to the patient such as interruptions, supply disruptions and technology (Tucker & Spear 2006). The perioperative setting is a dynamic and unpredictable environment where the ability to adapt to rapidly changing situations is paramount. This combination of complexity and unpredictability creates an environment vulnerable to rule breaking and where quick fixes to get the job done become tempting (Reid 2014) and evidence is growing that nurses, for a variety of reasons, adopt ways other than following the rules to get the job done (Debono et al. 2013; Halbesleben et al. 2008). Given that evidence based standards and protocols (rules) are safety tools to guide practice and deliver safe care, ways of working other than following the rules are examples of where a safety system can be breached, leading to the potential for patient harm and migration of practice to the boundaries of safety (Amalberti et al. 2006). The next section explores these other ways of working.

Ways of working

Several terms have been identified in the literature to describe behaviours that may lead to an adverse outcome including errors, violations, deviations, rule breaking, rule bending and shortcuts and more recently the term 'workaround' is gaining prominence. Errors, violations, deviations, rule breaking, cutting corners have connotations of 'bad' behaviour whilst rule bending, shortcuts and workarounds appear to denote behaviour that is more acceptable. What they have in common however is that all these approaches may have unintended consequences and lead to patient harm. This research aims to explore these concepts further particularly from the perspective of the perioperative nurse.

It is useful to commence discussion on ways of working other than following the rules with current definitions of these terms from the literature, followed by dialogue on how the definition is applied in the health care arena. The discussion will highlight where the literature uses terms interchangeably.

Shortcuts and cutting corners

A short cut is defined as an alternative route that is shorter than the one usually taken or an accelerated way of doing or achieving something (Merriam-Webster Online Dictionary). Taking shortcuts or cutting corners is something that routinely occurs both at home and professionally (Chard 2010; Reid 2014). Amalberti et al. (2006) refers to cutting corners as violations in the context where corners are cut to increase performance within a process that is under pressure and barriers are bypassed. Reason (2005) also argues that cutting corners is a type of violation.

Rule breaking and rule bending

The Oxford English Dictionary (2016) defines a rule as 'one of a set of explicit or understood regulations or principles governing conduct or procedure within a particular area of activity'. Within nursing practice, rules can be formal or informal, unwritten, unspoken or evolving (Milton 2006). Breaking the rules has a negative connotation that is to disobey or refuse to conform. Synonyms include: contravene, defy, evade, flout, ignore, infringe, misbehave, overstep, transgress and violate. Non-compliance is considered to be a form of rule breaking (Carthey et al. 2011).

On the other hand, the expression 'bending the rules' is generally accepted to mean doing something that is not usually allowed and encompasses a general societal understanding that it is sometimes acceptable and perhaps even tacitly encouraged to bend rules to get the job done (Collins 2012). This is constructive workplace deviance, purposeful employee behaviour enacted for reasons thought to be innovative by the employee arguing that rules are bent intentionally but done with good motive (Collins 2012). There is therefore a link here between the concept of rule bending and positive deviance. The description of this behaviour is also similar to that of a workaround. Although there is anecdotal acknowledgement of rule bending behaviours in nursing there is little published research in perioperative nursing.

Workarounds

The term workaround originally gained prominence in computing and technology to describe a method for overcoming a problem or limitation in a program or system (Koopman & Hoffman 2003). It has subsequently been adopted to describe actions taken by nurses to work around medication administration (DiConsiglio 2008; Halbesleben et al. 2010; Koppel et al. 2008) and other electronic systems (Vogelsmeier, Halbesleben & Scott-Cawiezell 2008). The term workaround is

described as a situation where a block in workflow is overcome by creating a solution to work around the block rather than following the intended process and is a term found extensively in the healthcare literature (Halbesleben, Rathert & Bennett 2013). It is a concept seen as having both positive and negative characteristics.

The factors contributing to workarounds include organisational, for example workload and productivity pressures (Debono et. al 2013; Espin et al. 2006); work processes such as interruptions and the mismatch between technology and current workflow (Debono et al. 2013; Fowler et al. 2008; Halbesleben et al. 2010; Koppel et al. 2008); patient related factors particularly timeliness (Halbesleben et al. 2010; Koppel et al. 2008); individual factors including exhaustion (Debono et al. 2013; Rathert et al. 2012); saving time (Reid 2014); and social and professional factors such as poor communication (Fowler et al. 2008; Tucker & Edmondson 2003).

Debono (2013) argues that views on workarounds are polarised in the literature where some studies conceptualise workarounds negatively, aligning them with terms such as short cuts, violations and deviance whilst other authors place a more positive spin arguing that workarounds are a creative process and a 'positive goldmine of information to improve patient safety' (Lalley 2013 p.36). Overall, the literature perceives workarounds in a negative light (Debono et. al. 2013).

Whilst workarounds are a creative way of managing a difficult situation in most situations (Reid 2014), they can contribute to medical error (Spear & Schmidhofer 2005). Reid (2014, p. 1) defines workarounds as violations 'because they occur as deliberate digressions from standard practice and in the case of our professional lives, deviations from established organisational procedures, processes and protocols'. Finding a way to work around a barrier is an example of what Tucker and

Edmondson (2003) call first order problem solving. They argue that workarounds are problem solving techniques that focus on the immediate issue but not the contributing factors, so whilst the workaround appears to have resolved the problem, it is only a temporary measure, as the underlying conditions have not changed, a situation that may contribute to the creation of the error promoting conditions discussed earlier.

Systematic reviews of the literature on workarounds in nursing by Halbesleben et al. (2008) and Debono (2013) found that workarounds remain ill defined; the term is inconsistently conceptualised in the clinical setting; there is a lack of clarity in how nurses perceive workarounds and how nurses differentiate them from other constructs and there is a lack of research on the potential consequences of workarounds. This research question will seek to address these gaps as they pertain to the perioperative setting.

Violations

Violations are defined as 'deviations from safe operating practices, procedures, standards or rules' (Reason 2005, p. 57) or 'deliberate deviations from standard procedures or instructions' (Amalberti et al. 2006 p.i66). This definition is similar to rule breaking and in the literature rule violation and rule breaking are sometimes used interchangeably.

Reason (2005a) argues that there are three kinds of violations; routine, optimizing and necessary or situational violations. Routine violations entail cutting corners wherever such opportunities present themselves. This definition interprets cutting corners as a type of violation. Optimising violations are actions taken to further personal rather than task related goals – for 'kicks'. Necessary or situational violations are actions that seem to offer the only path available to getting the job

done and rules or procedures are inappropriate for the present situation. This latter definition aligns with that of workarounds. Violations are intended but not necessarily the consequences.

Violations are most likely to occur in challenging workplaces where 'quick fixes are beguiling and more easily tolerated' (Reid 2014, p. 1). Clearly, the perioperative setting is a challenging work environment and is therefore vulnerable to violations. The irony is that many violations support service efficiencies and productivity in the short term at least and staff can be praised for flexibility and getting the job done. The problem is that individuals may be blind to the potential consequences and risks inherent in such behaviours and because they help us get things done, they become increasingly appealing. The potential is that violations become the norm and a lack of regard for the potential consequences of normalising deviant acts develops. When this happens the organisation begins to drift towards the boundaries of safety (Reid 2014).

Perspectives on rule breaking are derived from the work of various disciplines including motivation and attitude of individuals; organisational and cultural approaches; adaptation and flexibility of professionals and system migration (Amalberti et al. 2006; Carthey et al. 2011; Martin et al. 2013). Amalberti et al. (2006 p. i68) integrated elements of these perspectives into a system migration framework to explain how violations are established and normalized, underpinned by the notion that workers operate within 'an envelope of possible actions influenced all the time by wider organisational and social forces'. The framework includes three phases; first is the initial safe space where work process is ideally designed to operate according to a set of procedures and rules and constraints are in place as defences to violations; second is creation of borderline tolerated conditions of use where processes are in place but under pressure so barriers are quickly bypassed

and corners are cut to increase performance; third is normalisation of deviance where the violations have become routine and common and are 'invisible' to both workers and managers and at this stage any further deviance may easily result in harm to the patient.

There are few studies reported in the literature on the topic of violations in healthcare and in fact, the term itself is not widely used in this field. The QACHS study reported that violations were the underlying cause of 4.8% of adverse events but did not provide detail of the nature of these violations (Wilson & Runciman 1995). Other national adverse events studies did not refer to violations at all. The lack of information about violations is due to the difficulties in identifying that violations have occurred and the reluctance of individuals to engage in discussing violations due to the risk of punitive measures against them (Amalberti et al. 2006). Deliberate violations are poorly appreciated and studied in healthcare and it is important to acquire more knowledge about the causes and evolution.

Non-compliance

Non-compliance is also a type of violation but its definition is more difficult because its interpretation depends on the type of instruction, the nature of the work and the social and organisational context (Amalberti et al. 2006). In some cases, strict observance of a policy is required, for example the wearing of lead gowns during procedures using radiological equipment, whereas some flexibility is tolerated regarding other standards such as the wearing of jewellery and theatre attire. Not following policies and guidelines is a type of non-compliance but there are new challenges to compliance emerging in the workplace. A recent study has shown that the increasing number of policies and guidelines makes it difficult to distinguish the essential from the irrelevant and this impacts on compliance (Carthey et al. 2011) and ultimately may contribute to error.

Non-compliance has been a focus of research particularly as it pertains to the implementation of evidence-based practice, policies, protocols and guidelines including the WHO surgical checklist (Kieffer et al. 2013; Papaconstantinou et al. 2013; Saturno et al. 2014). Research into the role that ambiguity plays in non-compliance offers insight into the impact of lack of clarity of task, role and responsibility on compliance (Gurses et al. 2008).

The issues this raises for this research lies in the uncertainty of when full compliance is expected. The decision-making processes or 'mindfulness' of perioperative nurses in determining whether to comply with standards, policies, guidelines and protocols will be explored in this research.

Negative deviance and positive deviance

The verb 'deviate' is derived from the Latin de 'off' and via 'way' and came into use in the 17th century to describe the act of turning aside from a route or course whilst modern language characterises deviation as a departure from an accepted norm, or standard of behaviour (Merriam-Webster Online Dictionary). Rule breaking, taking short cuts, workarounds or cutting corners can all be considered forms of deviance because they deviate from the prescribed course of action.

This definition promotes deviance as a negative attribute, i.e. that the deviant behaviour is unacceptable. Recent management literature identifies two streams of research on deviant employee behaviour; one that frames deviance negatively where rule breaking behaviour may lead to organisational harm and the other where deviance is seen in a more positive light providing benefits to the organisation (Clancy 2010; Gary 2013; Lalley 2013; Lalley & Malloch 2010; Lindberg & Clancy 2010; Warren 2003). Deviance can therefore be associated with both negative and positive behaviours.

Before exploring the concept of positive deviance in more detail, it is worth considering a key question posed by Warren (2003), 'Deviant compared to what?' Current thought is that behaviour is deviant if it departs from the accepted norms of a social or reference group. Warren (2003) differentiates between formal and informal group norms, with formal norms being rules, procedures, codes of conduct and informal norms being work routines. An employee may belong to several social or reference groups i.e. a work team; a department; an organisation; a professional group and the accepted norms of each of those groups may differ. Thus, employees may find themselves complying with the informal norms of their work team but be non-compliant with organisational rules and policies or professional standards. This may give rise to conflict between the norms of those groups leading to 'competing sets of social influence and expectations' (Warren 2003 p.624).

Judging behaviour to be either positive or negative requires that is compared with a measure or standard and simply saying that behaviour is deviant, because it departs from a norm does not disclose anything about the importance or consequences of the behaviour (Warren 2003). Warren (2003, p. 622) unites the two streams of research on employee deviant behaviour, asserting that both negative and positive deviant behaviours are fundamentally the same in that 'both require a departure from norms whereby employees must resist social pressure to conform'. She suggests further that behaviours should be measured against more global standards or 'hyper norms' rather than local, reference group norms to determine whether the deviant behaviours are negative or positive. These 'hyper norms' encapsulate globally held values, beliefs and ethical principles and can be found in standards set by global organisations such as the World Health Organisation (WHO). National bodies such as the Australian Commission for Quality and Safety in Health Care (ACSQHC) and professional and industry bodies such as ACORN may derive their standards from global bodies. The Surgical Safety Checklist is an example of a

standard developed by WHO (World Alliance for Patient safety 2008) that is now embedded in national standards.

Constructive or positive deviance is also an approach used to effect change both organisationally and within communities. This approach has been used successfully in improving the nutritional status of children in third world countries, reducing the incidence of MRSA in hospitals, improving medication reconciliation; improving the use of electronic medical records (Clancy 2010; Lindberg & Clancy 2010; Lindberg et al. 2009).

Summary

This chapter has located the research problem in the broader literature on patient safety and has considered the role of human factors and systems in enhancing or eroding patient safety. There has been a focus on the role of rules and standards in the delivery of safe care and the implications of working in ways that are not in accordance with rules and standards have been explored.

Several ways of working have been identified in the literature with terms such as short cuts, cutting corners, rule breaking, rule bending, workarounds, violations and errors often being used interchangeably. On balance, there is consensus that in the context of nursing practice these ways of working are violations that constitute deviance from usual or accepted standards. Violations can be perceived as being a way of working which 'gets the job done' but its potential to lead to patient harm is not necessarily appreciated. Whilst violations clearly have the potential to lead to patient harm, recent research considers both the negative and positive consequences of such behaviours and answering this research question will explore these consequences further. The use of the term 'ways of working' in addressing this

research question does not limit this research project to exploring a single construct such as workaround, rather this approach leaves the way open to explore not only the existing concepts in use but may uncover new ones.

There have been few studies that have empirically studied the ways that perioperative nurses work and fewer that have explored the antecedents, attributes and consequences of the different ways of working and this research aims to fill this gap. The way that perioperative nurses perceive, describe, interpret and assimilate into practice the various ways of working and the factors that influence their decision-making are areas this research will explore.

Chapter 3: Methodology

This research uses qualitative enquiry to better understand the world in which perioperative nurses practice with specific regard to the way they work to maintain patient safety. The methodology chosen is constructivist grounded theory, developed by Kathy Charmaz in the 1990s. This approach builds on the fundamental premise of traditional grounded theory discovered by Glaser and Strauss in the 1960s, that 'systematic qualitative analysis had its own logic and could generate theory' (Charmaz 2014, p. 7). Constructivist grounded theory is widely employed in health research to discover issues that are important to specific groups of people and is an approach that enables the researcher to be an active participant in generating theory from their own as well as participants perspectives and experiences. The developed theory is a co-construction of the respective realties of the participants and the researcher and is grounded in the data.

The purpose of this chapter is to:

1. Situate this study within the qualitative research paradigm
2. Provide an overview of the evolution of constructivist grounded theory
3. Discuss the constructivist grounded theory approach and the appropriateness of this methodology to the research question
4. Explore the role of critical reflexivity in the research process
5. Review the issues of representation and legitimation in relation to qualitative inquiry and the importance of a rigorous and systematic approach to evaluation of the research
6. Describe the research design
7. Detail the methods and how these aligns with the research question
8. Describe the data collection and analysis procedures and processes

Qualitative research

Research is about discovery and learning more about the world within which we live. Numerous approaches facilitate the researcher making this journey of discovery. Research approaches are broadly categorized as being qualitative or quantitative. Qualitative research is concerned with 'how social experience is created and given meaning' and is in contrast to quantitative research that aims to 'measure and analyse causal relationships between variables' (Denzin & Lincoln 2005, p. 10). Qualitative research enables the exploration of a range of social dimensions and answer questions about 'how things work in particular contexts' (Mason 2014, p. 1). The importance of qualitative enquiry to study and understand human behaviour from a sociological perspective was established through the work of the 'Chicago School' in the 1920s and 1930s (Denzin & Lincoln 2005, p. 1). A range of disciplines including nursing then adopted qualitative enquiry.

Whilst much debate has centred on the argument that quantitative research is more rigorous and more scientific than qualitative research. Walsh (2013) argues that there are a number of ways of approaching research with no one way being more privileged than another. Debates that polarize the argument to an, 'either or' approach potentially limit the researcher and the research outcomes.

> *The approaches we currently possess are but windows that frame our view of this world but also limit what we can see. We should not think that our window is the only one, or indeed, our view the best (Walsh, 2013, p. 10).*

Rather than viewing qualitative and quantitative research as being mutually exclusive, current thought is that they are at either end of a continuum of beliefs and the researcher adopts either a qualitative or quantitative approach or a combination of both, based on the research question. Therefore, it is the research question that should determine the research methodology rather than the epistemological or ontological stance of the researcher.

The research question for this study asks, 'What are the ways of working in perioperative nursing and their implications for practice and patient safety?' The study is asking how things work in the context of the perioperative setting and is seeking to understand the behaviour of perioperative nurses as they respond to the daily challenges of delivering safe patient care in a complex and demanding environment. This research question therefore lends itself to a qualitative approach.

The grounded theory method

Grounded theory is a qualitative research methodology that aims to discover theory from data using inductive methods. Grounded theory was 'discovered' by Glaser and Strauss in the 1960s and the method was published in their seminal work 'The Discovery of Grounded Theory: Strategies for Qualitative Research (Glaser & Strauss 1967). This discovery came at a time of tension between qualitative and quantitative research in sociology in the United States, in particular in relation to the dearth of writings on qualitative methodological approaches and analytical strategies (Glaser & Strauss 1967). What Glaser and Strauss achieved for qualitative research was the articulation of a methodology underpinned by a systematic approach to analysis that could be applied in several settings for a variety of topics. This countered the prevailing positivist thinking that qualitative research was 'impressionistic, anecdotal, unsystematic and biased' (Charmaz 2014, p. 6). In challenging the positivist methodological assumptions of the day, Glaser and Strauss moved qualitative inquiry beyond descriptive studies to develop theoretical explanations about human behaviour (Charmaz 2014; Hall, Griffiths & McKenna 2013).

Ghezelijeh et al. (2009) characterise traditional grounded theory as ontologically realist and epistemologically positivist. This stance holds that there is a single reality and objective truth can be measured through research (Brekenbridge 2012). Grounded theory involves both an inductive and deductive approach to the

construction of theory (Hall, Griffiths & McKenna 2013) which is discovered through a process of data collection from which the issues of importance emerge (Field & Morse 1985) and hypotheses are tested and retested as they arise from the data (Mills, Bonner & Francis 2006a). It is an approach now used widely in health and nursing (Field & Morse 1985; Mason 2014).

The remodelling of grounded theory

Following the publication of their seminal work, a philosophical divide became apparent between Glaser and Strauss and their methodological approaches began to diverge along different paths. This developed into separate schools of thought, now referred to as Glaserian and Straussian grounded theory with Strauss working closely with Janet Corbin to co-develop the Straussian approach. Glaser has continued to focus on methods and his work continues to be closely aligned with the original approach (Glaser & Strauss 1967). Meanwhile Strauss and Corbin rejected the positivist approach that theory is out there to be discovered, became more aligned with pragmatism (Mills, Bonner & Francis 2006a) and subsequently adopted more realist stance (Higginbottom & Lauridsen 2014). Furthermore, in acknowledging the existence of multiple, socially constructed realities the work of Strauss and Corbin reflected a constructivist position (Hall, Griffiths & McKenna 2013). The remodelling of grounded theory occurred during the period of the 'blurred genres', where researchers had at their disposal a range of paradigms and methods and a more interpretative approach was gaining currency (Higginbottom & Lauridsen 2014, p. 12).

This divergence set the scene for the evolution of other postmodern approaches to qualitative enquiry including dimensional analysis introduced by Leonard Schatzman (Schatzman 1991), situational analysis espoused by Adele Clarke (Clarke, AE 2005) and constructivist grounded theory developed by Kathy Charmaz (Charmaz 2014). These approaches share common elements with traditional grounded theory, in

particular the systematic analysis of data. The main differences are in the underlying epistemological assumptions under challenge at the time. This period is known as the 'crisis of representation' where writing was becoming more reflexive, issues of validity, reliability and objectivity were once more becoming problematic and older models of truth and meaning were being challenged (Denzin & Lincoln 2005).

The constructivist approach to grounded theory

In the development of constructivist grounded theory, Charmaz put forward the notion that relativity and subjectivity had a place in grounded theory which in the day 'caused quite a stir' (2014, p. 14). She chose the term 'constructivist' to acknowledge the place of relativity and subjectivity and the way that the researcher and participants co-constructed a shared understanding from the data and also to differentiate her viewpoint from the social constructionist approach with which she had grown dissatisfied (Charmaz 2014, p. 14).

The central tenets of constructivist grounded theory are to give voice to participants, the co-construction of understanding, the assumption of relativism and the subjective epistemological perspective which underpins the approach (Charmaz 2014). In contrast to traditional grounded theory, constructivist grounded theory is ontologically relativist and epistemologically subjective. Ontologically it denies the existence of a single objective reality purporting that reality is a social construction; there are as many social constructions as there are individuals and some constructions are shared within groups (Breckenridge et al. 2012). Epistemologically it is subjective because of the nature of the relationship between the researcher and the participants, which acknowledges the knowledge, values and views that the researcher brings to the research. The researcher is part of the research endeavour rather than being an objective observer and theory is developed from the researchers rendering of participants data (Mills, Bonner & Francis 2006a).

Another difference between the constructivist and traditional grounded theory approaches lies in the way literature is viewed on and around the area under study. Traditional grounded theory does not advocate a review of the literature until after the analysis is completed to avoid 'seeing your data through the lens of earlier ideas' (Charmaz 2014, p. 306). The constructivist approach however considers that reviewing the literature along with any other available data informs the research process, stimulating further discussion with participants and further analysis of the data (Charmaz 2014).

The view that theory is constructed and the pivotal role that interviews play in the collection and construction of data is not shared by Glaser and he addressed his reasons why in a response to a chapter written by Charmaz in 2000 called Grounded Theory: Objectivist and Constructivist Methods (Glaser 2012). Glaser argues that constructivist grounded theory is a misnomer because grounded theory can use any data, not just constructed data from interviews. Glaser states:

> *It means exactly what is going on in the research scene is the data, whatever the source, whether interview, observations, documents, in whatever combination. It is not only what is being told, how it is being told and the conditions of its being told, but also all the data surrounding what is being told (2012, p. 28).*

Glaser argues further that the constructivist view of the nature of the relationship between the researcher and the participant in co-constructing understanding is characteristic of the interview technique. The potential biases in the researcher and participant relationship are just another variable to consider. He claims that the grounded theory constant comparative method is the technique which brings all the data together, from whatever source (not just interviews) and discovers the latent patterns which lead to theory development (Glaser 2012).

Despite the relativist and subjectivist differences of opinion, constructivist grounded theory is true to the four main tenets of grounded theory, these being:

1. The requirement for conceptualisation and theory development;
2. That theories must be grounded in social reality;
3. That the researcher approach the topic with an open mind; and
4. The use of theoretical sampling (Glaser 2012).

It is the third element concerning the role of the researcher that Charmaz has further developed based on the premise that the researcher cannot be a neutral and value free observer. Rather the researcher is someone who brings his/her own values, privileges and preconceptions to the research, which must not only be acknowledged but also embraced as a part of the research process (Hunter et al. 2011). This stance is reflective of the postmodern period in the development of qualitative research where it was argued that the researcher can no longer remain aloof from the research (Charmaz 2014).

Researchers rationale for choosing the constructivist grounded theory method

Methodology is 'how researchers ascertain what they think can be known; the analysis of how research should or does proceed' (Ghezeljeh & Emami 2009, p. 2). The ontological and epistemological stance of the researcher influences the chosen methodology and it is therefore important to consider this stance when selecting the approach for the research question. I considered three methodologies to determine their applicability in answering this research question. These were interpretive or hermeneutic phenomenology, ethnography and constructivist grounded theory. A review of several studies pertaining to perioperative nursing assessed the relevance of the methodologies to this research question.

Interpretive or hermeneutic phenomenology was considered as a methodology as it enables the researcher to describe and understand the phenomenon of day to day activities which may be routine, taken for granted and yet complex and situational in an attempt to understand them in a new way (Denzin & Lincoln 2005). Rowlands and Streeves (2010) used this approach to explore the experiences of perioperative nurses in relation to incorrect surgical counts whilst Lindwall and von Post (2008) adopted a hermeneutic approach to describe habits in perioperative nursing culture.

Ethnography is the study of a culture or a sub-culture where the researcher becomes immersed in the setting in order to better understand the world of the participants and is an approach widely used in nursing (Lindwall & von Post 2008; Rowlands & Steeves 2010). Bingham (1995) used ethnographic approach to explore and engage in a dialogue with a group of students on what it meant to be a perioperative nurse. Ethnography was the method of choice for McDonald (2006) to study threats to patient safety in an operating theatre of a NHS hospital whilst Bull and FitzGerald (2006) employed an ethnographic approach to address the ways in which OR nurses care for patients within a technological environment.

As stated previously, traditional grounded theory is a qualitative research methodology that aims to discover theory from data using inductive methods. It is a qualitative, systematic approach to discover a theory that explains situated actions and interactions within a research setting (Charmaz 2014). Whilst it is a qualitative approach, the underlying ontology of traditional grounded theory is positivist and from an epistemological perspective, the researcher remains aloof from the research. In constructivist grounded theory on the other hand, the researcher is a partner in the research and co-constructs understanding with the participants. Waehle et al. (2012) adopted this approach to develop an emergent theory regarding the use of surgical checklists to reduce adverse events.

The previous discussion demonstrates that several qualitative research methodologies could address this research question. The reasons I selected the constructivist grounded theory approach for this research are threefold:

1. The approach would enable collection and analysis of data from observation and interview to answer the research question 'What are the ways of working in perioperative nursing and their implications for practice and patient safety' to develop a theory grounded in that data;
2. This approach resonated with my epistemological and ontological worldview.
3. The approach acknowledged the subjectivity and the emic perspective I bring to the research. The constructivist approach has reshaped the relationship between the researcher and the participants by enabling the researcher to be an active participant in generating theory from their own as well as the participant's experiences. As I have a background in perioperative nursing the constructivist approach acknowledged that I have a perspective that would enable me to co-construct understanding and meanings with the participants.

Research design

A major implication of choosing a constructivist grounded theory approach lies in the design of the research study. Contrary to the traditional grounded theory approach, where the researcher takes the stance of an objective observer, the constructivist approach requires the establishment of a relationship between the researcher and the participants that is reciprocal in nature (Waehle et al. 2012). Key considerations this raised for the research design are the way the interviews are conducted, how the power imbalance between researcher and participant was addressed, the role that critical reflexivity and self-reflection played in the co-construction of meaning and the style adopted for writing up the research (Mills, Bonner & Francis 2006a).

The relationship between the researcher and the participants

The relationship between the researcher and the participants is central in qualitative research. Before entering the field, consideration of the nature of the relationship between the participants and myself as researcher brought forth two potential issues, these being power and the professional self. I reflected on this in the following memo before going into the field.

> **Memo** (Sept 15 2015)**:** I have been reading an article by Robyn Dowling for the unit 'Qualitative Methods' called 'Power, subjectivity and ethics in qualitative research' (Dowling 2010). The timing of this unit is good as it is informing my thoughts as I prepare to go into the field to commence data collection. The article poses several questions that I will attempt to answer in relation to my own research.
>
> What is the nature of this relationship with the participants? Is it reciprocal?
> No as we are not in comparable social positions and the benefits and costs of participating are not equal.
>
> Is it asymmetrical – studying up?
> No, as the participants are not in a position of influence in comparison to me.
>
> Is it asymmetrical – studying down?

Yes, as I am in a position of greater power than the participants. This means the relationship is potentially exploitative.

What are some of the power dynamics of the general social situation I am exploring and what sort of power dynamics do I expect between the informants and myself?

It may be perceived that I could convey things I see/hear about what goes on because of my contacts and relationships with senior staff in the department and in hospital administration. With some participants, in the past I have been their teacher/manager and I may therefore still be perceived as being in an authoritative role. I could potentially portray them in a bad light. What I say about them and their world may 'have the potential to change the way those people are thought about'.

Dowling also asks the researcher to consider whether they are an insider or outsider in respect to the research project? I am an insider in that I have worked both as a perioperative nurse and in that exact environment but I am also an outsider in that I am not one of the team.

The questions posed by Dowling facilitate engagement in critical reflexivity, an important consideration in grounded theory. This has been very helpful in the research design phase.

Issue of power

Qualitative research necessitates participation in a social process. The interactions between the researcher and the participants occur in a societal context where norms, expectations and structures of power play a role (Kong, Mahoney & Plummer 2001). Power impinges on the research in a variety of ways. Firstly in the way that the researcher interprets the information gathered, secondly in that the knowledge gained can be used to influence policy making decisions and thirdly it can change the way people think about the participants (Dowling 2010). In this research the power relationship is asymmetrical because of the difference between the social position I hold and that of the participants. Whilst the power dimension cannot be eliminated, it can be managed through a process of critical reflexivity (Dowling 2010).

Reflexivity

Qualitative research acknowledges reflexivity as a powerful methodological tool to raise self-awareness and recognise ones' place in the research and the research process. Critical reflexivity is defined by Charmaz (2014, p. 344) as 'the researcher's scrutiny of the research experience, decisions and interpretations in ways that bring him or her into the process'. Asking questions of oneself and of the research process and reflecting on the answers helps to make the researcher accountable for his/her position and 'demonstrate quality and rigour' in the research process (Dowling 2010, p. 30). Keeping a research journal and writing memos were the techniques used to record and make those internal conversations and deliberations transparent.

Evaluation of qualitative research

Crisis of legitimation

The evaluation of qualitative research has long been the subject of discussion and debate. The 'triple crisis' described by Denzin and Lincoln (2005, p. 19) asks how qualitative studies are to be evaluated 'in the contemporary, post structural moment'. Questioning the relevance of traditional concepts of validity, generalisability and reliability raises issues of the legitimation of qualitative research. More recently criteria such as credibility, transferability, dependability and confirmability have been offered as useful principles for evaluating qualitative research (Mansvelt & Berg 2010, p. 351). The current view is that the authority to claim the research as legitimate is based on it being an accurate, true and complete account of experience and meaning (Schwandt 2007), recognising that the text is an interpretation or construction by the researcher. Mason (2014, p. 38) argues that the broad ideas behind the concepts of validity, generalisability and reliability are not 'necessarily problematic' and can be usefully applied to the evaluation of qualitative research. Charmaz (2014) however uses the criteria of credibility,

originality, resonance and usefulness to evaluate grounded theory studies and it is these criteria that were used to evaluate this research.

Credibility

Credibility speaks to the researchers familiarity with the research setting and topic; the sufficiency of the data; the systematic comparative analysis of categories; and the strength of the links between the data and the findings (Charmaz 2014).

Originality

Originality is present through the offering of new insights; a new conceptual rendering of the data; the significance of the research and how it extends knowledge in the area (Charmaz 2014).

Resonance

The research is portrayed in a meaningful way that is evocative of the lived experience of the participants and offering deeper insights about their world that resonate with the participants and perioperative nurses across other sites (Charmaz 2014).

Usefulness

Usefulness entails rendering the findings in a meaningful, readable and accessible manner so readers can use them in the everyday world. The contribution of the findings to knowledge is evident along with opportunities for further research (Charmaz 2014).

The previous discussion highlights the importance of a rigorous and systematic approach to any qualitative research. The constructivist grounded theory approach is both rigorous and systematic. Keeping a research journal and writing memos to record assumptions, interpretations and influences assists in making transparent the

perspectives that underpin the writing, contributes to the data collection and facilitates the process of theorising.

Crisis of Representation

The crisis of representation relates to capturing the lived experience. Debate has raged about the epistemology, method and forms or representation within qualitative research (Schwandt 2007). A central question is whether the research account can capture the lived experience of the participants and whether the researcher is representing the world as viewed by the participants or creating their experiences through the writing of the text (Denzin & Lincoln 2005, p. 19). This crisis emerged from the claim that interpretative accounts cannot completely capture lived experience (Schwandt 2007). Resolution of this issue requires an acknowledgement that the research account is not the single truth but an interpretation of the multiple truths as lived by each of the participants and the researcher, which the researcher renders into a text.

Issues of legitimation and representation should be considered at the research design stage (Denzin & Lincoln 2005, p. 25) to ensure that the methodology is matched to the research question and the methods of data collection are appropriate to the methodology.

Ethical considerations

The major ethical considerations in this research were obtaining ethics approval to conduct the research; gaining approval to access the sites where the research was carried out; obtaining the informed consent of the participants; issues of the professional self; and being in the field where other staff would be present during observation of participants.

The approval process

The approval process was multilayered and included ethics approval, site approval and approval to attend the specific clinical setting. An outline of these processes follows:

Ethics approval

Because this study involved hospital employees, ethics approval was required to conduct the research and this focused predominantly on the provision of information about the study and the obtaining of an informed consent to participate. Of importance was conveying to participants that they could opt out of the study at any time.

Ethics approval to conduct this research was sought and obtained from the Human Ethics Research Committee (Tasmania) Network (H0014736) with the research meeting the criteria for a low risk application (Appendix 1).

Site approval Private Hospital

The private hospital firstly required evidence that the Human Ethics Research Committee, (Tasmania) Network (HREC), had approved the study. Submission of the research proposal to the hospital Ethics Committee for approval followed. A meeting was then convened with the Director of Clinical Services to gain approval to conduct the study and consent to contact the Theatre Manager.

Site approval Public Hospital

CEO approval was required to come on site to conduct research and this process was facilitated via the medico-legal office. The written approval of the Director of Nursing was obtained at the time of the initial meeting along with consent to contact the Theatre Manager.

Clinical area approval

The Theatre Manager of each operating suite was contacted to brief them on the project, seek their permission to enter the operating suite and to gain their support to recruit staff to participate in the research.

Issue of the professional self

A significant question for me was 'what do I do if I see something that may result in harm to a patient while observing a participant?' This important ethical question had to be resolved before entering the field because it related to doing what was 'right'. Firstly, I entered the field as an observer who was also a registered practicing nurse with obligations and responsibilities to prevent patient harm and report negligent practice. Secondly, I entered the field as an observer who as a human being had a sense of obligation and responsibility to speak up if I thought that another human being was a risk of harm. The dilemma is that this professional self, placed me in a unique position to recognise the potential for patient harm in the research setting that other observers without this experience may not foresee. In other words, I was more 'attuned' to the risks inherent in the setting. The resolution to this dilemma lay in remaining true to my personal and professional self and speaking up where it becomes evident that the patient may experience significant harm if I failed to do so.

I was faced with the actual situation on the 3rd day of observing and again a few days later. The first time was when I was observing a research participant as she was opening sterile supplies. She had just shown a student how to do this task and he was standing close by, also opening items. However, it was clear that he was completely unaware of the sterile gowns open on a table behind him and was moving closer and closer. The research participant was also unaware of his proximity so I got up and whispered in her ear that he was getting too close and she addressed the situation with him, thanking me afterwards.

The second time was when a patient was being anaesthetised. The anaesthetic nurse had placed an arm board on one side to keep his arm supported but on the other side, the arm was unsupported. As the patient drifted off to sleep, I could see his arm slipping and that soon it would fall off the table. I indicated to the scout nurse what was happening and she immediately addressed it, nodding in thanks as she caught his arm. Following this event, I wrote the following memo:

> **Memo** (18 Oct 2106)**:** I cannot un-know what I know about the maintenance of a sterile field and it was clear to me that both the student and participant were unaware that he was about to contaminate the sterile field.
>
> I cannot un-see the arm of an unconscious patient slip of the table potentially causing damage to a nerve, skin, or soft tissue and it was clear to me that no one else had noticed.
>
> However, I did see what the risks were and therefore I spoke up as my professional self. It was the right thing to do.

Being in the field

As participants were going to be observed as they went about their daily activities, it was inevitable that the work of other team members was going to be witnessed as the participants interacted with them. A communication strategy was developed to address this should it be raised by other team members and provide a clear and

consistent message that only observing staff who had consented to participate were being observed. The interaction of the participant with other members of the team was going to be part of the data collected and additionally participants named other team members during interview. It was therefore important that those persons remained completely anonymous and unidentifiable in the telling of the participant's stories.

Obtaining participant consent

Written consent was obtained from the participants for interviewing and being observed in practice (Appendix 2). Each participant was given a Participant Information sheet, which outlined the nature of the study and their involvement (Appendix 3). Both the participant information sheet and consent form were submitted to the Human Ethics Research Committee, (Tasmania) Network and the Private Hospital Ethics Committee and approved for use. Only participants who consented to participate in the study were directly observed.

Research setting

The main operating suites of a public and a private hospital in Tasmania are the setting for this study. The initial contact was through the Director of Nursing/Clinical Services of each hospital at a meeting to provide an outline of the study and to seek their formal approval to conduct the research at their sites. Both were provided with a letter, formulated on the principles of the Building Effective Engagement Techniques (BEET) tool developed to implement practice change and assist in engaging stakeholders in a change process (Walsh et al. 2005). This tool was chosen to assist in presenting a strong and coherent argument to the key stakeholders at the selected hospitals of the benefits of the research and my capacity to undertake it. The letter provided an outline of my professional background, the goal of the research study, the outcomes envisaged from the study and the actions it was proposed to implement in conducting the research.

The two hospitals performed a range of surgeries from day surgery and low acuity elective surgery to trauma, emergencies and high acuity neurological and cardiac surgery, thus providing a broad cross section of specialities and acuity.

Recruitment

The first group of participants were recruited followed a staff meeting in the theatre at the public hospital where a brief overview of the research was provided. 4 participants came forward after the meeting with 3 agreeing to be observed and interviewed and one agreeing to be interviewed. All were RNs who had many years of experience. Subsequently an EN with minimal (less than 3 months) experience who was participating in 'an orientation to theatre course', volunteered to participate in the study.

Another group of participants was recruited at the private hospital following the success of the strategy used at the public hospital. Two participants came forward at the meeting and within 2 weeks of commencing observation, a novice RN and another experienced RN also indicated interest and consented to participate along with a RN in a management/clinical role.

Inclusion criteria and selection of participants

Six practicing Registered and Enrolled Nurses in scrub and circulating roles from a cross section of age and length of experience gave consent to participate (Table 1).

Identifier	Public/Private	RN/EN	Years of experience
Susan	Public	RN	20+
Louise	Public	EN	<1
Claire	Private	RN	10 +
Joanne	Private	RN	20 +
Sarah	Public	RN	20 +
Jane	Private	RN	15+

Table 1: Participating perioperative nurses

The next section details the methods of data collection and analysis. The data collection techniques of coding, constant comparison, theoretical sampling, saturation and data sufficiency will be detailed and examples of application of these techniques provided.

Methods

The methods adopted for this research were interviewing, observation and memos. As a strategy of inquiry, constructivist grounded theory relies on these data collection methods to interpret and analyse the lived experience of the participants.

Interviewing

The interview technique was intensive rather than purely conversational. By adopting a purely conversational approach the researcher may find themselves listening rather than questioning and seeking clarification and letting the participant direct the flow rather than allowing the researcher to stop to explore points raised in more detail (Charmaz 2014). On the other hand an intensive interview 'typically means a one sided, gently guided conversation that explores a person's substantial experience with the research topic' (Charmaz 2014, p. 56).

Charmaz (2014) offers a number of strategies for conducting effective interviews including reading participants nonverbal cues; leaving the space open for participants to decline to answer; softening or reframing questions to reduce invasiveness; and improvising to maintain the flow and how to provide feedback to assist the participant to be more articulate. Guidelines for interviewing are provided by Charmaz (2014, p. 70) and these were adopted for the interviews with perioperative nurses (Appendix 4).

Recording and transcribing of interviews

The constructivist approach to interviewing permits interviews to be recorded and transcribed which is in contrast to the Glaserian approach which promotes note taking alone as being sufficient to record the essentials (Charmaz 2014). However

Charmaz (2014, p. 91) argues that note taking alone does not capture situational details such as participant tone and silences, which are important elements for constructivist grounded theorists. In this research, interviews were recorded and transcribed before coding.

Participant observation

Participant observation is a technique commonly used in ethnography to facilitate immersion in the culture of the participants being studied (Dobson 1986). As stated earlier, in this approach the researcher becomes immersed in the setting in order to better understand the world of the participants (Lindwall & von Post 2008; Rowlands & Steeves 2010). Charmaz (2014, p. 23) argues that the combination of ethnographic observations and interviews is a 'powerful data collection strategy' that provides rich data. Participant observation employs four levels of involvement: participant, participant as observer, observer as participant and observer (Hoare et al. 2012) or alternatively as participating, partially participating, minimally participating or non-participating (Laitinen, Kaunonen & Åstedt-Kurki 2014).

In this study, the stance taken was that of a participant observer. Participant observation 'allows the researcher to see what people do and to compare what they do with what they say they do' (Laitinen, Kaunonen & Åstedt-Kurki 2014, p. 11) within the social context. The notes made during observation facilitate deep probing of what is happening in the setting. The notes record actions, anecdotes, observations, define issues of importance to the participants, pay attention to language, place the actions of the participants in context and highlight the significant processes occurring in the setting (Charmaz 2014). By being present in the setting with the participants, the researcher experiences the world of the participants with them.

Charmaz (2014) poses a number of questions for the novice observer to consider when in the field, to assist in more clearly viewing the events as they unfold and facilitate the gathering of rich data from observation of the participants. These questions were adapted to form a framework for observing perioperative nurses as they went about their daily activities (Appendix 5).

Memo writing

Memo writing is a technique used by the researcher to take time out to consider and analyse the information derived from coding or the emerging categories. It forms an important link between collecting the data and writing drafts (Charmaz 2014) and enhances the exploration of the data (Hoare, Mills & Francis 2012). Whilst in the field, the participant's actions; the context; the conditions present at the time; interactions between the participant and others along with the researcher's thoughts and observations were recorded. These notes not only informed the questions to later to ask the participant, they also formed the basis for memos in which the emerging issues and themes were further explored. Furthermore, as observation and data collection progressed, the assumptions held by the participants and myself were queried and challenged and different ways to interpret the data were sought. The writing of memos not only assisted in analysing and theorising but also informed the process of theoretical sampling, highlighting gaps in the data and focussing attention on emerging categories and concepts.

Data analysis procedures

Six participants were observed for a total of 56 hours and 10 hours of interviews were conducted and transcribed. The transcribed interviews were entered into the software program NVivo and the process of coding commenced.

Coding

Data was analysed using coding, the fundamental analytical tool used in grounded theory. The technique of coding requires that the data is taken apart, defined and labelled so that ultimately, categories can be developed from codes that demonstrate analytical strength (Charmaz 2014). Unlike quantitative analysis, the codes are not preconceived and applied to the data, rather they emerge from the data (Charmaz 2014).

Initial coding is where the researcher begins to engage with and define the data. Line by line coding is a form of initial coding where the researcher analyses each line of data and what theoretical ideas it suggests (Charmaz 2014). Initial coding consisted of reading the interviews and creating codes for pieces of information that had relevance to the research question. These codes were revisited sorting similar codes into groups under a head code. For example, the descriptions given by the participants about how they managed tasks, were coded, sorted and grouped under the head code 'Task management'. Where gathered data was similar, or shared common features, it was pulled in under a category. For example, the head codes task management, anticipation, situation awareness, forethought and 'being prepared' were grouped under the category of non-technical skills. If the actual expression used by the participant is coded, this becomes an in-vivo code and is recognised throughout this research by enclosure in italics. For example, 'being prepared' is an in-vivo code. This process not only holds 'like' data together, it also makes the data more manageable.

At this stage the information in each code was in chunks or exemplars from the interviews. The next stage was coding these chunks line by line. This led to more focussed coding and recoding. Revisiting the interview transcripts ensured the coding or re-coding of all relevant information contained in the interview. As new data was coded and new understandings and patterns emerged the original codes and head codes were revisited and where applicable merged, separated or re-named.

Focussed coding follows on from initial coding where the researcher looks in more detail at the most common codes arising from the initial codes and begins to test them against the larger batch of data (Charmaz 2014). For example, line by line coding of interview exemplars from different participants was revealing data about not having enough time to complete all the tasks expected. The in vivo code of 'I wish there was more time' drew together data on the topic of time. This led to reviewing the literature in more depth and exploring the research on this topic. The literature itself both constitutes data and informs the data and is coded accordingly.

Focussed coding revealed several common themes amongst the codes and gathering these into tentative categories facilitated further exploration. Memos documented emerging and revealing thoughts along with possible links to other codes. Where relevant, the memos were then linked to the code. For example, a link emerged between the pressures that perceived lack of time created to get the job done and the impact it had on task management, leading to a realisation that there are differing and competing temporal structures at play.

Constant comparison

The researcher analyses the data collected through a technique of constant comparison that gives meaning to the stories told by the participants (Ghezeljeh & Emami 2009). Data is compared with data, data with codes, code with code, code with category, category with category and category with concept (Charmaz 2014) to identify similarities and differences in the data to facilitate coding, development of categories and finally concepts (Higginbottom & Lauridsen 2014; Hunter et al. 2011). The finding of similarities in the data and drawing data on time together under the code ‘‘I wish there was more time’ as outlined above, is an example of constant comparison at work. So too is the development of category of ‘Wishing there was more time’ that was initially a code but was raised to a category because it represented several codes on the theme of time and its impact or influence on the ways that perioperative nurses work.

Constant comparison of the data assists in clarifying any themes and patterns that are emerging. This in turn informs where there are gaps and the questions that need asking to address them and to consolidate thoughts on emerging patterns.

Theoretical sampling, saturation and data sufficiency

Using the techniques of theoretical sampling and saturation of categories, the researcher develops the properties of each emerging category, seeking people, events or information that define the properties, boundaries and relevance of the category or set of categories (Charmaz 2014). For example, codes, such as ‘team time out practices varying between teams and specialties’; ‘practices being influenced by the presence of certain staff members’; ‘inconsistencies in practices between staff’; ‘not everyone does it exactly the same’; the following of rules being ‘hit and miss’; were gathered under the category of ambiguity/clarity.

To ensure clarity for the researcher and reader when reading the findings in Chapters 4 and 5, definitions are provided for many of the categories. For example, in the category of ambiguity/clarity, ambiguity is defined as 'uncertainty of meaning where more than one interpretation is plausible' and clarity is 'clearness of understanding and freedom from ambiguity'. Where provided, these definitions are in boxes at the beginning of the section directly under the section heading.

A review of interview transcripts, field notes, memos and the literature sought out the practices relevant to each category and helped set the boundaries for the category. The conduct of further interviews targeted questions to gather more data to substantiate emerging themes. Annotations made during the coding process assisted in highlighting areas for further examination and exploration with interviewees.

Saturation occurs at the point where gathering more data on a category does not yield any additional properties or insights (Charmaz 2014) so when it became clear the data was offering no new insights, data sufficiency was deemed to have occurred. Charmaz (2014) argues that the quality of the research and its credibility relies on the quality of the data, its relevance, depth and sufficiency. Suitable and sufficient data is required 'to fit your task and give a full picture of the topic' (Charmaz 2014, p. 33). Data sufficiency is not however just about quantity; it also relates to the richness of the data that tells the participants stories and enables the researcher to interpret and render the co-constructed understandings of the participants and researcher into a robust theory that explains what is happening. The point at which sufficient data has been collected is the point at which the categories become saturated, 'in other words, your categories are robust because you have found no new properties of these categories and your established properties account for patterns in your data' (Charmaz, 2014 p.213).

Basic Social Processes

Traditional grounded theory describes basic social processes as being fundamental to the grounded theory method (Charmaz 2014 p.34). Glaser (2005) argues that a basic social process emerges from a core category, contending that while a core category is always present in a grounded theory research study, a basic social process may not be. Reflecting on and asking questions of what is being seen and heard in the research setting will assist the researcher to study the processes occurring. Charmaz suggests the following actions to determine what social processes are at play:

- *Attending to actions and processes as well as words*
- *Delineating the context, scenes and situations of action carefully*
- *Recording who did what, when it occurred, why it happened and how it occurred*
- *Identifying the conditions under which specific actions, intentions and processes emerge or are muted*
- *Looking for ways to interpret the data*
- *Focussing on specific words and phrases to which participants seem to attribute particular meaning*
- *Finding taken for granted and hidden assumptions of various participants; showing how they are revealed through and affect action* (2014 p.35)

Adopting the strategies outlined above during the process of data collection and analysis assisted me in identifying the processes at play in the research setting and a basic social process emerged from my research. The core category (phenomena) of 'being pressured' and 'feeling pressured' led to the emergence of the social process of reshaping practice in response to pressure. Discovery of a basic social process enhances our understanding of the practical realities faced by the participants and helps to explain the variations in the behaviour.

Summary

This chapter situated this research within the qualitative paradigm and drawing on the work of Denzin and Lincoln (2005) has placed constructivist grounded theory in the post-modern period where the notion of the aloof researcher was being challenged. The appropriateness of this methodology and methods to the research question have been established and the research design outlined with specific emphasis on the relationship between the researcher and the participants and concerns relating to power and the role of the professional self. The role of critical reflexivity as a means of raising self-awareness and recognising the researchers place in the research and the research process was also explored.

A review of the issues of representation and legitimation in relation to qualitative inquiry highlighted the importance of a rigorous and systematic approach to assure credibility, originality, resonances and usefulness of qualitative research findings. Ethical considerations emphasised informed participant consent, ensuring that participants and other team members remained unidentifiable and the robustness of the ethics approval processes.

This chapter also provided an overview of the methods and data collection and analysis procedures applied to the data within a constructivist grounded theory framework. The research methods outlined are appropriate to address the research questions posed in this study.

The next two chapters present the findings of the research structured under the headings of context, phenomenon and process.

Chapter 4: Findings

The context - 'Enablers and constraints to practicing in accordance with rules and standards'.

The findings are presented in two chapters. The current chapter presents the **context** within which perioperative nurses practice that enables or constrains practicing in accordance with standards and rules. These enablers and constraints may act to enhance performance and compliance or conversely create an environment or pressure that results in perioperative nurses making trade-offs between rule following or rule breaking to get the job done. Chapter 5 is in two parts with Part 1 exploring the **phenomena** of 'being pressured' and 'feeling pressured' to get the job done that emerged from the data. Part 2 discusses the **process** of 'reshaping practice' that perioperative nurses engage in as they respond to the pressures to get the job done. The context, phenomena and process together constitute the substantive theory that **perioperative nurses reshape their practice in response to pressures to get the job done.**

Introduction

The data identified a range of factors that act to enable or constrain the perioperative nurse practicing in accordance with rules and standards. These factors constitute the context within which perioperative nurses practice and deliver patient care. Factors that enable or constrain practicing in accordance with the rules create pressure and/or an environment vulnerable to working in ways other than following standards and rules. Coding, sifting and sorting of the data led to synthesis of several categories, which in turn gave rise to the five key concepts of 'organisational conditions', 'ambiguity', 'having a good day', 'knowing how' and

'they've just got it'. Each of these concepts will now be explored with reference to the categories from which they arose.

Organisational conditions

In this study, I define organisational conditions as those conditions present in the workplace that influence practicing in accordance with the rules and are within the remit of the organisation to control or manage through appropriate human, material and IT resource management.

The codes emerging from the data relating to organisational conditions included:

Being limited by time
Being busy
Being interrupted
Being distracted
Taking the focus away from the patient
Doing paperwork
Having to leave the theatre to get equipment and supplies
Managing tasks unrelated to the patient on the table; and
Being responsible for junior staff

The codes were sifted and sorted into the categories of 'being busy'; 'needing more time'; interruptions and distractions; skill mix and team makeup and together they constitute the concept of **organisational conditions** that act to enable or constrain practicing in accordance with the rules. These categories form the sub headings for this section.

'Being busy'

The perioperative nurse participants describe their daily work as 'being busy'. The busyness may be related to the number of patients on a list or the nature of the surgical procedures, such as short cases with quick turnovers:

Joanne: … on really busy days like when you have a busy eye day for example.

> Claire: … and if you've got a really busy day with lots of short cases.

They also describe being busy as doing many tasks, doing more than one thing at once (multitasking) and having to focus on tasks unrelated to the patient:

> Jane: That is what busy means to me really. A lot of jobs to do. A lot of extra jobs to do.
>
> Susan: I find that it gets busy pretty easily and I might be focusing on two or three things.
>
> Claire: … and you haven't done anything on the computer or any paperwork because you've been busy doing all that other stuff.
>
> Jane: We keep very busy going around chasing things up all the time.

The participants acknowledge that 'being busy' has implications for their practice, the way they perform their tasks, the priorities they make and the potential risks it poses for patient safety. In particular, that 'being busy' takes the focus away from the patient on the table:

> Susan: I was so busy I that I wasn't focussing on patient safety.
>
> Claire: Sometimes it does distract me from focussing on the patient, if it all gets too busy.
>
> Jane: It has meant feeling like I've got lots of balls in the air to juggle and I've got to try and keep on top you know.

'Needing more time'

During interview, the participants frequently referred to the amount of time or lack of time to perform tasks and activities. Examples of codes were: 'time, we need more time'; being limited by time; 'it comes down to a time thing'; non-clinical time; time consuming; managing time; saving time; 'just one more minute' and pressure of time.

Some tasks performed by perioperative nurses are very time consuming such as checking trays against the tray list before the commencement of the procedure. The more complex the surgery, the more trays there are and therefore there are more tray lists to check. This task is performed concurrently with several other tasks such as setting up instruments trolleys, opening supplies and counting 'accountable' items, so it makes for a busy period for the scrub and scout nurse. The time-consuming nature of tray checking coupled with limited time to complete all the other necessary tasks can be a constraint to practicing in accordance with the rules. The following exemplar demonstrates this:

> Susan: If there are 2 experienced theatre nurses in the theatre you know it can be time consuming to do a tray list for something that you know well and for a minimal or quite remote risk of losing something in the patient, again plastic surgery, so it does come down to efficiency sometimes as well.

Having to chase down equipment to be able to safely position the patient is another time-consuming task:

> Susan: I wouldn't say it necessarily affects patient safety because you get the right one in the end. But it's time consuming in the interim trying to chase it down.

The peeling of stickers from the labels on supplies sterilised in CSD and applying them to a tracking form at point of use is another time-consuming task identified by Susan:

> Yes, it is time consuming. When you're opening neurosurgical for example or orthopaedic items, where they have multitudes of trays that's where I see people getting big bundles (of stickers) and for me that's where it's more efficient to have your form right there and stick them straight on.

Senior perioperative nurses often have portfolios that they manage in addition to their allocated clinical roles. They find though that clinical time always takes priority, often leaving little or no non-clinical time to complete tasks associated with their portfolios. This results in them having to do these tasks during a list, taking the focus away from the patient on the table and adding to the number of tasks they are managing at a given time. This in turn adds to the pressure to get the job done. Limitations on time and other priorities means some tasks are not done such as updating surgeon's preference cards. The following three exemplars convey the frustration felt by senior perioperative nurse participants at not having time to do non-clinical tasks and make improvements:

> Susan: We are rostered non-clinical time but we are only given it based on the availability on the day. You can't manage if you're not given the time to manage and improve things. Nothing changes. Nothing improves. There's so much room for improvement that would affect safety, efficiency, everything, but not being given time to do that, I find is a real issue.
>
> Sarah: On my wish list is to have non-clinical time so I could do stuff that I'd like to have up to date. It's the non-clinical stuff that sometimes I think, again, I had on my list, 'I must order this, this and this.' Now, if I don't get a chance to do it for a couple of days then there's a bit of pressure to make sure that I do get that equipment here.
>
> Joanne: They (competencies) are actually out of date, which is a bit of a worry and one of these days, I will get time to update them.

Another time-consuming task identified by the participants was paperwork. Joanne finds herself having to get paperwork done in the morning in preparation for the afternoon list, as she knows she will not have time to do it all when the time comes due to the speed of the surgeon. She is conscious that this is taking her attention away from the patient currently on the table but this is a compromise she feels she must make to get the job done. I asked her what she prepared in advance:

> Joanne: Paperwork. I was putting data into the computer that wasn't essential data that takes a lot of time. So, like I was signing the sticker form, I was filling the chargeable item numbers on the chargeable form and I was putting data into the computer that always stays the same. I've actually thought about whether that is a good thing to be doing during someone else's list and I'm really aware. I always do it during the morning list, as that surgeon is much slower so I am very aware that I am doing something that is not for that patient. So, I am always listening and I just leave it and go away from it if the surgeon needs help. So, I don't think it is of any detriment to the patient. Whereas, if I left it until the actual list, some of it wouldn't get done because it's not possible to keep up with him.

When incidents occur such as discovering that an alert is not on the system or equipment is broken, finding time to access the computer and enter the data into the program to report the problem is problematic and as a result, many incidents are just not reported. This has implications for risk management and patient safety:

> Susan: It usually comes down to a time thing. A lot of things happen that really should have an incident report filled out about them or just to highlight or to put something in writing somewhere, to raise somebody's awareness about it but again it's time consuming. A lot of time it just doesn't happen because you simply do not have time and it's just something else to add to your list, you know it's just taking your focus off the current patient and what you're doing so a lot of it goes undocumented.

> Susan: A prime example is that the bed is broken but A hasn't got time to follow up, why is the bed broken, how come this child is on the bed if it's broken, what can we do about this, who is to fix this broken bed? We don't really want it back to put the child back on at the end of the case. Yes, time, we need more time.

There are several constraints on perioperative nurse's time with additional portfolio responsibilities and the amount of paperwork being significant factors. The lack of time can lead to non-reporting of issues and incidents, preference cards being out of date and juggling of multiple asks with its concomitant pressure to not drop any balls and forget things.

Completing paperwork ahead of time is cutting corners to get the job done. A consistent thread is the need to balance the competing demands of being there for the patient and the need to complete administrative tasks. Perioperative nurses are also cognisant that administrative demands take their focus away from their patients. My findings indicate that lack of time is the biggest inhibiting factor for making improvements and the non-reporting of things that go wrong. This creates a lost opportunity for improving the systems and process that support the delivery of safe patient care and many resolvable issues remain within the system to create issues and pressure for others.

Interruptions and distractions

Interruptions and distractions take many forms and those identified by the participants included phone calls; people coming to theatre to ask questions; colleagues talking about non-patient related matters; presence of students and the need to attend to multiple tasks and other responsibilities. Interruptions and distractions may constrain practicing in accordance with rules and standards. In the next exemplar, a colleague who was relaying information completely unrelated to the patient on the table interrupts Claire during a count. I asked her if that happened often and what the impact was:

> Claire: Most people are pretty good when you're counting, unless it's an urgent thing. I have found it happening more frequently with exactly the same situation as it was today and I have actually had a word about it to that person because I really do need to concentrate on one thing at a time because there are already other distractions. So, yes, it does have an impact. I thought about restarting the count, but I was very confident that I hadn't touched anything and that I had stopped in the middle of the packs, but technically I probably should have started again really. But yes, it is a distraction, so it has the impact of possibly not counting correctly.

Claire recognises that her concentration is broken by being interrupted and may create a risk of counting incorrectly. She is also fully aware that the standard says the count should be restarted if there is an interruption. However, in the here and now she must weigh up the consequences of following the standard or not and she decides to continue the count. The impact of the unnecessary interruption is that a rule is broken to get the job done.

On one occasion when Susan was team leader and scout for a list, I observed that she was interrupted 3 times during one operation. One person came to the door and asked Susan for a telephone number and another came to theatre with a pair of scissors that she showed Susan. There was also a phone call that Susan stepped out of the theatre to take. At the interview that followed, I asked Susan if she was interrupted very often:

> Susan: Yes. I'm only here on [certain days of the week] so I often get interrupted by someone who comes to the door asking a question about tomorrow and you'll often see me checking the predicted lists, like you saw me doing today, the list and this emails and things during the case. But obviously, I try and do those things at an appropriate time like once the procedure is up and running, if I have time.

As a senior nurse in the operating suite, Susan has a portfolio for overseeing a specialty. With this portfolio come additional responsibilities that require Susan's attention. Phone calls and queries from staff about issues concerning her portfolio interrupt her from time to time, during an operation. She acknowledges that these interruptions take her focus away from the patient on the table and on occasions, she leaves the theatre to deal with them.

Having students in the theatre places additional demands on the team and can be distracting. Susan acknowledges that teaching can be a distraction adding to the list of tasks to do and potentially taking the focus from the patient:

> Susan: Whether it distracts from what I'm doing? Sometimes it does, not always but I guess the potential is there. In my mind, I'm thinking I've got to go out and chase that up but I want to help this person with the paperwork and I also need to be doing what I'm doing. So, I guess it is easy to potentially lose focus but I also think probably that because of the amount of years I've been doing this I do a lot of things without thinking. So, I guess that's part of the multi-tasking and throw a bit of teaching in there as well I guess you can easily get distracted with something.

Jane also related that having multiple tasks to complete, juggling them and trying to remember everything that needed action was distracting:

> Jane: I still feel like I give really good patient care but it does distract me at times from fully focusing on the patient, which I like to do and that's what I get satisfaction from.

Many the tasks that perioperative nurses need to perform to meet organisational needs take the focus away from the patient. Claire related to me that sometimes she left the prostheses paperwork until after the end of the list so that it did not distract her from delivering care to the patient. I reflected on this in the following memo:

> **Memo** (28 Nov 2015)**:** Some of the standards are about the systems and processes within which we work and others are about recommended practices and they are all there to create a safe environment for patients. So, when you always bring these things back to patient safety, then it makes for some very interesting conversations. One of the things that I'm seeing and thinking about, which is what's interesting for me, is how much of what it is that perioperative nurses do that takes their focus away from their key role which is patient safety, towards meeting the needs of the organisation. So, what Claire talked about in relation to the orthopaedic prosthesis for example, is about meeting organisational need, so if we come back and say, 'Well actually I'm here for patient safety and if I'm doing this, I can't be doing that when that's what actually I am here for in terms of patient safety'. Therefore, when Claire says she leaves it until the end (paperwork), then her focus of attention is on the patient and providing a safe environment for the patient. Unfortunately, that leaves her with a backlog of administrative stuff that somehow or other is still hers to sort.

Interruptions and distractions can affect the cognitive work of nurses. This has important implications for understanding the origins of medical errors and is particularly applicable in the operating theatre. Disruptions and interruptions, including people entering and leaving the theatre, telephones and beepers, equipment failures and other work environment issues have been shown to adversely impact on workflow with interruptions occurring on average 9-10 times per hour (Antoniadis et al. 2013). Interruptions can be a determinant in adverse events (Koh, Park & Wickens 2014) and there is a strong link between the number of interruptions and surgical errors (Wiegmann et al. 2007). The number of interruptions has been shown to increase the number of miscommunications (Gillespie, Chaboyer and Fairweather 2012). This highlights that interruptions occurring while completing other tasks can have a negative impact on the successful completion of the task at hand by impacting on flow and potentially resulting in losing one's place in a count or forgetting a task altogether.

'Having a good team'

The makeup of team emerged as an important factor for the perioperative nurse participants. Team make-up can enhance or detract from individual or team performance. The following exemplars provide a rich description of what happens when the participants perceive the team as being 'right':

> Claire: I think it makes a big difference when you get to know each other, so when new staff come you sort of hold back a bit because you are getting to know their experience, what skills they've got that they can bring. So, I think knowing each other well and I don't mean in a friendship way, but just knowing the skills that individuals have is important in having a good team. Helping each other and not just wanting to stick to your role and you know, be blinkered to everything else that's going on.
>
> Susan: Lists will seemingly run like clockwork if you've got people thinking on the same level and the (speciality theatre is a great example of that. It's a core team. It's the same team all

> the time. So, everything runs beautifully in there. Everyone knows what he or she needs to do; everybody knows what is expected of him or her.
>
> Claire: So, the skill mix is really important because it makes it a lot less stressful, or at least for the scout and for the doctor because everyone knows what they are doing.

Having a good team takes the pressure off individual team members because they can rely on each other to get the job done. Perceiving the skill mix and team make up is not good can create pressure on the perioperative nurse and affect team performance:

> Claire: One of the pressures can be if you haven't got the right skill mix in the theatre, then that can delay cases, delay the day.

Good communication plays an important role in teamwork and patient safety. The following exemplars describe situations where poor communication may have resulted in wrong site surgery or inappropriate diagnosis:

> Louise: For example, a simple scenario that could have gone really wrong last week: we were all set up for a particular case, had the first patient's name on the computer, details entered etc. and a patient comes in and gets settled on the bed. Thankfully, they weren't asleep, but the anaesthetist has given me the paperwork and I've thought 'oh that name doesn't match what I've got here, this patient is second on the list'. So, I've actually gone over quietly to the anaesthetist and checked and he said, 'oh yes the first one has been cancelled'. We hadn't as the nursing staff hadn't been notified that the first one was cancelled, so we were planning on doing the first case, where the anaesthetist was all set up for the second one. Had that patient been asleep, I would have been assuming that they were having something totally different in a totally different area to what they were actually having. Had we all been on the same page as me, that patient could have been in a whole lot of danger; because once they're asleep they can't say no I'm not that patient.
>
> Susan: There was an incident here at the hospital in the last year or so. It was the doughnuts of the bowel resection (from the stapling device) and there was some misunderstanding between the surgeon and the scrub nurse about wanting to send them off. I don't do a lot of bowel surgery but I'm pretty sure routinely they do go off, but maybe they don't go routinely and in this instance, there was a miscommunication and when the patient came to

> see the surgeon, he looked at the computer and there were no results because the specimens hadn't been sent off. So obviously, there was an impact on the patient. Obviously, all the specimens are important but I guess not having the specimen may be the difference between the patient having to come back for another procedure or not.

In summary, organisational conditions such as workload, interruptions and distractions, skill mix and communication can enable or constrain practicing in accordance with rules and standards and create pressure to get the job done. The next section explores the role that ambiguity/clarity of rules, standards and tasks can have in enabling or constraining practicing in accordance with rules and standards.

Ambiguity/clarity of rules, standards and tasks

In this study, I define ambiguity as uncertainty of meaning where more than one interpretation is plausible, and clarity as clearness of understanding and freedom from ambiguity.

Ambiguity was not a term used by the participants. Rather it developed as a construct through analysis of the data. In observing the practices of the perioperative nurse participants as they went about their daily work, it became clear that whilst rules and standards were adhered to most the time, there were several inconsistencies in terms of how things were done in different theatres, in different types of surgeries, in different situations and in different teams. Coding and sorting of my observations and the responses given in interviews gave rise to five areas of practice where ambiguity was evident, these being the checking of tray lists; the count; the implementation of the Team Time Out (TTO) procedure; and management of warmed sterile solutions. These areas of practice form the headings for this section.

Checking of tray lists

I observed that Claire counted the total number of instruments on a minor tray rather than counting them in groups of like instruments e.g. artery forceps, scissors, tissue holders. The ACORN Standard 'Management of Accountable Items used during Surgery/Procedures in the Perioperative Environment' (ACORN 2016) is silent on this point with the result that each nurse does it differently. Claire explained that practices differed depending on whom you are working with:

> Claire: Sometimes we do count them individually, the minor op tray. It sort of depends on who you are counting with. Some people say, 'I'm just going to count the whole tray' and others will start counting it, you know, the scrub nurse will start counting it in separate groups so it sort of depends on who you're counting with.

The surgical count

The next two exemplars highlight inconsistencies in recording items on the count sheet and the technique of counting:

> Claire: I wonder about a lot of things with the count because we actually don't count every single thing that we open onto a table. We open a disposable Y-suction catheter for tonsils and I've started to put that on the count sheet, but we never did before. It's funny people's perception of what should be in the count and what shouldn't, like we open a disposable pen and ruler and the ruler's just a bit of paper, but some pens don't have a ruler in it and some do and it's just some people put down the ruler as well as the pen and other people don't. And there are things that we put on the table that we haven't been told to count or haven't in the past been habitually counted and they don't get put on there and I think well, if we count that, then why don't we count that?
>
> Claire: Some people will open it (the pack), put it over here and fold it and that's fine because I can see it. But some people have a different technique that I find hard to follow and I really have to look to make sure I can see that it's a single pack that they're putting down. A couple of years ago, we had a few lots of packs of raytec that had six in them. So, I'm making sure that I can see and the scout can see, that that is a single item that I'm counting off.

Whether certain consumable items are included as part of the count, how the item is recorded and the way that items are separated and displayed during a count are examples of where there is ambiguity rather than clarity. The checking of tray lists is covered in the Standard 'Management of Accountable Items Used during Surgery/Procedures in the Perioperative Environment (ACORN 2016). Standard Statement 1 recommends that Health Care Facilities (HCF) develop a policy that defines those types of surgery requiring the management of accountable items; what items should be included in mandatory counts and any variations to the management of accountable items. The absence of such a policy leads to ambiguity and inconsistencies in practice and may have implications for patient safety. Standard Statement: Criteria 3.3 and 3.5 prescribe that 'both nurses count each individual item out loud simultaneously while visualising all items' and 'ensure that

each accountable item is separated during the counting procedure'. That there is a difference in the way individuals can apply the technique of counting highlights a degree of ambiguity in the standard.

Implementation of the Team Time Out (TTO)

I observed many inconsistencies during the TTO, where team members pause before commencing the procedure to verify the correct patient is having the correct surgery on the correct site:

> Susan: Some of the anaesthetists are very good at driving it. There's one in particular I can think of who always says, right before he gives any drugs and before the patient goes to sleep, let's do a time out. But of course, sometimes they might have had some midazolam in the anaesthetic bay while they've been waiting so in that instance I guess once they've had some drugs on board that changes that a little bit. So, where possible I would usually try to instigate it before the patient goes to sleep. But I think the actual standard or protocol is that it can be done once the patient is asleep before the initial incision is done. One surgeon I'm thinking of in particular always does the time out when the patient is prepped, draped and ready and before he makes his incision, he'll do his time out then. So, there are a lot of variances.

This exemplar highlights ambiguity as to who should instigate the TTO, when the TTO is performed and a lack of certainty of what the protocol actually says should be done. I also observed differences in the level of engagement of various team members. Susan rationalises that it is better to do a TTO with fully engaged team members than push the doctors to participate:

> Susan: The TTO is obviously an important, probably one of *the* most important checks we do, so I will always make sure that we have done one. But I guess that what I let slip some of the time is the amount of engagement I guess that's in there.

As Team Leader Susan, must make a call as to whether she is going to push the doctors to fully comply with the TTO protocol or not. She rationalises that doing a

TTO with the people present and who do participate is more important than ensuring full compliance with the protocol. This leaves the perioperative nurse in a position of having to compromise and complete the activity often without full team participation. In other words, the ambiguity and lack of consistency constrains practicing in accordance with the rules.

Management of warmed sterile solutions

The following memo highlights inconsistencies in the practice of storing sterile solutions in warming cabinets:

> **Memo** (13 Oct 2015)**:** I observed that the practices around the storage of solutions in a warming cabinet were inconsistent. Solutions are placed in the warming cabinet to assist in preventing hypothermia so warming them is a risk minimisation strategy. In the absence of a hospital policy or professional standard, I referred to the manufacturer's instructions obtained through a web search. The manufacturer's rules around storage state that these solutions should only be warmed at certain temperatures for certain periods of time to maintain their chemical composition and therefore their efficacy. The manufacturer's instructions provide two options for storage with the variation based on temperature of the cabinet and time stored. They also provide instructions on managing unused solutions under each storage option and promote labelling as a mechanism for monitoring the length of storage. To follow these instructions the temperature of the cabinet needs to be known and solutions then dated according to either option one or two above. On one occasion, I observed Susan taking a bottle of saline out of the warming cabinet, checking the label with the scrub nurse and pouring it into a sterile container on the set up. I resolved to follow this up with Susan at interview.

At interview, I asked Susan about the rationale for warming solutions, how she knew which ones to warm and how she knew how long bottles of saline had been in the warming cabinet before she took it out for use

Susan responded:

> Susan: They say saline bottles can be kept in the heater for 14 days. They don't become unsterile. My understanding is that potentially some of the concentration of the fluids might

> have changed in there. They say it can go back to room temperature but shouldn't be reheated again. If you take it out of the hot box and put it back on the shelf, it's still sterile, that's my understanding of it.
>
> Researcher: So how do you know whether it's been in there for 14 days?
>
> Susan: They are supposed to be dated but it's hit and miss. There is no set policy. It's an individual thing whether you chose to do that or not. A lot of the saline gets rotated around regularly anyway, so a lot of people just think it gets rotated. But there's no set policy, which is something I did want to look into.

This exemplar highlights a lack of clarity around the practice of warming solutions compounded by the absence of a hospital policy to support the manufacturer's instructions leaving the way open for misinterpretation and inconsistency in practice. This has potential implications for patient safety in that extended warming at incorrect temperatures may alter the composition of solutions. In looking at this in light of work by Gurses (2007) there is ambiguity around the required settings of the cabinet; the length of time the solution can be stored and; responsibility for dating the bottles and rotating older ones forward. The absence of an organisational policy to support the implementation of manufacturer's instructions leads to inconsistency in compliance with the rules, which in this case are the manufacturer's instructions. The actual practice of keeping solutions in the warming cabinet for 14 days is not consistent with either option in the manufacturer's instruction. Susan was aware that the practice for warming of solutions was underpinned by manufacturers guidelines but acknowledged that her understanding was incomplete, prompting her to revisit them (demonstrating the reflexive nature of the interview).

In summary ambiguity in policies, standards and practices can enable or constrain practicing in accordance with those rules and standards. Whilst the concept of ambiguity may not create pressure for the perioperative nurse, it contributes to the

vulnerability of the workplace by creating opportunities for miscommunication, misunderstandings and misinterpretation. Where rules and standards are clear and unambiguous there is little room for misinterpretation and the variability in performance is limited. The next section explores the role that teamwork and team dynamics play in enabling or constraining practicing in accordance with rules and standards.

Team characteristics: 'Having a good day'

I define team characteristics in this study as those features that identify a specific group of people who share a common goal.

The following codes evidence team characteristics that act to enable or constrain practicing in accordance with the rules and/or increase or decrease the pressure felt by team members.

> Being confident in colleague's techniques
> Feeling confident in other equally experienced staff
> Influence of certain members of a team
> Working with different team members
> Learning correct practices from what others do
> This is what we do here
> Practices depend on who you are working with
> Letting that go

The two categories of teamwork and dynamics and shared goals arose from sorting these codes. Together they form the concept 'having a good day'. These categories form the headings of this section.

Teamwork and dynamics

The perioperative nurse participants view the experience of the team as integral to the provision of safe patient care and the ability of the team to get the job done. Claire reflects on the importance of having an experienced team during a paediatric list:

> Claire: It's safer. It's less stressful for everybody involved to have a skill mix that's right.

Having less experienced team members can adversely affect the performance of the team. As Claire identifies, in a small team having one member who is less experienced or who works at a slower pace can impact on team dynamics and lead to an 'unpleasant day'.

> Claire: The other is when you have a list where the surgeon and/or the anaesthetist want it to move quickly. They want a very quick change over time between cases and if you've got staff members, they don't even have to be new, but that just take more time in what they do. That can make the list stressful because things are being slowed down, the list's being slowed down, the surgeon or the anaesthetist are getting crabby because the list's slower. It makes for a stressful day when you know you've got a long day ahead of you and the surgeon gets crabby at 9:30 and you think 'Oh it's going to be a long day' and then, you know, it can be an unpleasant day. That doesn't have to be an inexperienced person that can make a difference; it can be the way that different people work together.

Several factors influence 'having a good day'. An important one is that everyone in the team does the role he/she is there to do. Again, this comes back to team membership and familiarity and each team member having trust and confidence in each other. When Sarah works in another team in another theatre, having a good day is not a given. Familiarity and trust can therefore have either a positive or a negative impact on how the day goes.

> Researcher: And what influences that (the team) positively?
>
> Sarah: Making sure everyone does the role that they do for the day and its gone well. It's funny; because in here [usual theatre] you don't ask that question, you just do it. Whereas if you're in the other theatres, you can still have good days but again, it depends on your team and the people that you're working with. So, if you're working with another experienced nurse and a junior one, a good day to me is teaching that new person and hoping that they've had a good day and they've learnt something, that sort of thing. And the other senior person has had a good day and perhaps the pressure has been taken off her or him because we've worked well together and they don't think that they have to think about every single thing.

Productive relationships, trusts and good communication within the team are key factors in team performance and achieving shared goals. Good team dynamics can also enhance job satisfaction and provide a pleasant and relaxed working environment for the staff. The structure of the work context plays a role in enhancing or constraining team cooperation and where trust is lacking coupled with a lack of support from social and organisational structures, there may be poor team functionality and communication failures (Rydenfalt et al. 2012).

Shared goals

Shared team goals that are clearly articulated can have a positive impact on team performance. Differences between team members as to what the shared goals of the team are (perceptions of activities) may lead to tension (Rydenfalt et al. 2012). These goals can be implicit or explicit. I asked Sarah what the main goal was for her team at the start of the day:

> Sarah: To have a good day.
>
> Researcher: What constitutes a good day?
>
> Sarah: Everything goes smoothly, everything runs efficiently, we work well together, everyone is happy and we've done a good job. I think the efficiency and its gone smoothly. There haven't been hiccoughs as well. I think that's a good day.

I asked Sarah if the team itself set the goal of having a good day and she responded that it was a tacit thing but the whole team felt the same way. Being efficient and being seen to be efficient is also a goal for Sarah and her team. They take pride in the fact that the surgeons do not have to ask for anything, that everything is ready and available. Sarah expressed that in addition to 'having a good day', keeping patients safe is a tacit goal, 'it's a given, it's what we are here for'. A cohesive, well-functioning team looks out for each other and plugs any gaps. As Sarah says in the following exemplar, changing the sucker was the anaesthetic nurse's responsibility.

The anaesthetic nurse missed it, Sarah noticed it and fixed it because having the sucker there and ready it is a patient safety issue:

> Sarah: I came in and noticed that there wasn't any suction on the anaesthetic machine. Technically that's not my task to complete, but I noticed it and I fixed it and that's a safety thing. Again, you need suction. Obviously, the patient is not likely to need suctioning, but if it wasn't there - you know. It's that focus all around you, looking all around you to make sure everything's right, observing that the patient's okay. It all comes back to the patient.

In summary, team members orient themselves to the common task, which is keeping patients safe and completing the list within the specified time schedule. How they do this is influenced by the social and organisational context. Lack of cohesion of surgical teams has be found to adversely impact on communication which in turn can have implications for patient safety (Gillespie, Brigid M. et al. 2013). Cohesiveness also affects the wellbeing of the team - 'having a good day's and job satisfaction - 'knowing I've done a good job'.

Individual characteristics

Several codes emerged from the data relating to the characteristics of the participants and other team members.

These codes were sifted and sorted into the categories of making decisions; having experience - 'knowing how/not knowing how'; having non-technical skills – 'they've just got it' and making a personal choice. Together they constitute the concept of **individual characteristics** that act to enable or constrain practicing in accordance with the rules. These categories form the sub headings for this section and examples of codes will be included under each sub section.

Decision making

Interestingly the participants did not themselves use the terms decision or decision making, rather they used the terms 'using common sense'; 'it makes sense'; 'using experience'; and 'using clinical judgment' in response to my questions concerning the decision-making process that was occurring when they worked in a certain way. However, these terms do all point to a cognitive process occurring that results in making a decision. In the first exemplar Susan reflects on why she makes the decision to not check trays for smaller procedures:

> Susan: I think you have to use your experience and your judgment and sometimes common sense has to prevail. If it's a small finger for example, you are not going to lose a pair of scissors in there. You may lose them in the linen but I don't feel that jeopardizes the patient's safety whereas if I didn't do the tray list on a thoracic case for example or a laparotomy, well that wouldn't sit comfortably with me.

Susan uses a combination of judgement, experience and common sense to underpin the ultimate decision not to check the trays in certain situations. Participants frequently referred to 'using their experience' to inform their decision making in a range of practice situations including whether to break the rules or not in a given

situation. In the following exemplar Sarah describes the role that experience plays in her decision to not use the tray lists, even though the surgery is in the thoracic cavity:

> Researcher: So, for example, you've made a conscious decision not to do the tray lists based on your experience. So, are there other things, besides experience, that influence you to deviate from the standard?
>
> Sarah: Probably not. I think it is because we're experienced nurses and that we know the trays so well that we can recognise if something's missing or not right, pretty well straight away and because we've got the set trays all the time. There are things that we count in our mind, not openly, but you go through the tray when you're getting your instruments out in your own mind knowing that all the equipment - it's not that we don't consciously count them but unconsciously we are counting the trays ourselves all the time.

In the next exemplar, I asked Claire how she felt about doctors taking a drink into theatre whilst the nurses were not allowed. For Claire, this particular rule 'makes sense' and hence she is willing to comply even when the doctors do not:

> Claire: I'm not saying it's right that it's one rule for one and one rule for another. I think as long as we are all trying to do the right thing, if the doctors choose not to when they know the rules, there isn't a lot more we can do about it. I don't feel cross that we have to and they don't, because I agree with the concept of it and why we do it because I think it makes sense.

The next exemplar describes the close relationship between knowledge, experience and clinical judgement where Susan made the decision to open a sterile item that had been dropped on the floor:

> Researcher: Going back to something that you have said quite consistently, that is over and above understanding what the standard or rules say you are applying a level of clinical judgement in tandem with that rule. So not accepting the rule as black and white.
>
> Susan: Yes, that's right so here is a certain amount of clinical judgement there and a certain amount of knowledge of your supplies and equipment. Someone more junior might not

> realise that is the only double ended 'whatever' that we've got so that it is making a judgement call and using your prior knowledge so there are a few factors there, I guess.

What these exemplars highlight is that even when the participants know what the rules and standards say, the rule or standard is only one factor they consider when making a decision. Other factors such as availability of replacement items, knowledge and experience all play a part in decision-making. The next section will discuss in detail the relationship between experience and knowledge that emerged from the research.

Having experience - 'Knowing how/not knowing how'

This section seeks to understand what experience means through the eyes of the participants and how it influences decision-making. The concept of knowing how/not knowing how emerged from the categories of 'experience is knowing'; gaps in knowledge and personal choice. These categories form the headings for this section.

Experience is 'knowing how'

A team member's experience can moderate/influence behaviour. I asked Susan what the term 'experience' meant for her:

> Susan: It makes a lot of things easier; it makes you feel comfortable in what you are doing. It allows you to know what you need to do. It allows you to teach other people what you are doing and what to do. In terms of patient safety, it's got to be a benefit to the patient, again you know what to do, what's safe practice. If you're scrubbing, you are maintaining the sterile field, you've got the right equipment, understanding the surgery so you can anticipate what the surgeon needs, planning what you are going to do.

Her description conveys a sense of being comfortable in her own professional and personal skin, of knowing what to do and of understanding what is going on. This

'knowing' underpins her ability to anticipate and plan. She recognises the benefit of this 'knowing' for the delivery of safe patient care and for teaching. Experience as described by Susan is an enabler and contributes positively to her own performance, the performance of the team and her ability to deliver safe patient care.

Sarah also reflects on how 'knowing' is a key factor in enabling her to manage an emergency case in her speciality and that the knowing is borne from experience:

> Sarah: Again, experience I think. Because we are so routine, having that fairly set routine that things go in certain order and you know that that's the way you want to flow and you know subconsciously that you can do it all the time. Even directing your people or people from the outside that, 'I need this, this and this. I know where it is; get it.' Knowing that sort of routine down pretty well after all these years. So, it's experience.

Participants identified that 'experience' was not related to how long someone had been a perioperative nurse:

> Susan: Just because you've worked in theatre for a long time doesn't mean you are any good at it.

In Claire's eyes the longevity of practice is of less importance than the quality and specific type of experience the nurse has:

> Claire: So, it's not experience in years, it's how much a person has worked in that area of surgery, or with that surgeon even.

The notion that the experience the participants speak of is not related to the passage of time or to longevity is expressed by Benner (Benner 1984). Rather than length of time, it is the amount and quality of practice that are key factors in the level of expertise people achieve, indicating that it is not just passage of time that builds experience, it is also the quality of the experiences on the journey (Ericsson,

Prietula & Cokely 2007). Expertise is gained over the course of time and is shaped by experience (Scholes, Albarran & Williams 2006).

Participants indicated that the experience of other team members is a positive influence on their own performance and the performance of the team. There is a solid link between experience of the team and ensuring a safe outcome for the patient. With experience comes confidence and lack of confidence of team members can pervade the atmosphere, making the whole team edgy. The following exemplar encapsulates the influence experience has on the team working cohesively to deliver safe patient care and difficulties that can arise when team members are not experienced:

> Claire: Probably the best example of when it's really important [having an experienced team] is when we've got paediatric patients. We usually have four staff in a theatre. It's the only time we have four staff in a theatre, when we've got paediatric patients. There are two people allocated to anaesthetics to help get the child off to sleep and to look after the parent who's usually there, take the parent out and then continue looking after the patient while they're intubated or the mask's put in. If the fourth person - if the whole team isn't experienced in paediatrics… it's the anaesthetic side of it which can go wrong very quickly - it can be very stressful and dangerous, so that's one situation where it's really important to have the skill mix right.

A link between experience and practicing without thinking emerged from the data. The term 'sub conscious' was frequently used by Susan and I asked her what the term meant to her and how it was she could do things without consciously thinking about them:

> Susan: Definitely experience. I think just a lot of it comes down to experience. Like when you are undoing sterile drapes or draping, I don't think, 'oh now I need to put the plastic down to make it waterproof and now I need 2 layers'. It's a matter of experience and routine and I think routine comes from experience as well.

Susan's experience allows her to filter out the routine and the mundane and this is an attribute of an expert practitioner. Lyneham et al. (2008) call this attribute cognitive intuition, which they link to the ability to process information on both conscious and unconscious levels and the ability to rationalize the decision after the event. This notion is of interest because the participants identified a range of activities they performed and decisions they made without conscious thought but they were able to rationalize or explain in hindsight why they did what they did. In the following exemplar Susan describes the frequently performed task of opening a sterile item and she recognises that this is done without conscious thought:

> Researcher: What is it that you are looking for then when you say, 'for sterility'?
>
> Susan: I'm looking to see that the package is intact, that the indicator has changed. We don't get every packet and spend 30 seconds thoroughly checking it. I guess there is a certain element of subconsciousness when you're looking, when you're undoing it. Has it been sealed across? I guess you are subconsciously thinking that about that and when you're opening it, yes, it's sealed, yes it looks ok and it feels ok. And there is a certain amount of subconscious there that if you opened it and it opens very quickly you'd think 'oh that's not right, it's not sealed'.

Susan also recognises that whilst the task is perfomed subconsciously, anything out of the ordinary is raised into the consciousness. Dreyfus and Dreyfus (1980) argue that 'most expert performance is ongoing and non-reflective unless confronted with an unusual or critical situation'.

When observing Sarah, I noted that during positioning, she held up the patient's hand to show the anaesthetist and afterwards I asked her why she did this. She responded that she noticed the patient was wearing her wedding ring, which was unusual as the norm was for the patient to come without their rings. So, it was the 'out of the ordinary' Sarah became aware of. She was not consciously checking whether the patient was wearing a ring but became aware of it because it was out

of the ordinary. Similarly, in a previous exemplar Sarah had noted the absence of a complete suction unit. Again, this is the process of filtering information that expert nurses use, the scanning of the environment that picks up the unusual, rather than the usual.

The subconscious level at which the participants work is indicative of operating at the level of an expert. This enables them to make decisions quickly by filtering out unnecessary detail and homing in on any issues that appear out of the ordinary or unusual. The experience of which the participants speak is in fact expertise, the special skills and knowledge developed because of experience. It is the expertise that is highly valued as with it comes a level of knowledge and skill that enhance the work of the team, instils confidence and trust in the whole team, reduces pressure and facilitates the delivery of safe patient care.

Gaps in knowledge

There were several examples in the data where knowledge about an area of practice was absent or incomplete and this was a factor in decision-making. Where a participant did not know that a rule existed or what a standard said in relation to a practice then it was problematic to follow the rule or standard. When it became apparent to the participant that they lacked knowledge about a specific topic or practice, they readily acknowledged this and in so doing engaged in critical reflexivity. The following exemplars demonstrate gaps in knowledge related to four ACORN standards:

1. Management of Accountable Items Used During Surgery/Procedures in the Perioperative Environment Standard: Standard Statement 3: Criteria 3.3 (ACORN 2016)

> Researcher: …that practice actually would have been the standard practice as articulated in the ACORN count standard, that you visualised the pack?
>
> Joanne: I don't know if it actually says 'visualises', I don't actually know that it says that.

2. Perioperative Attire: Standard Statement 2 Criteria 2.6 (ACORN 2016)

> Claire: I would have to have a look and see what it actually says. I know they don't encourage us bringing our own uniforms in, even if they've been appropriately laundered because we can't, you know, we don't have the controls that an industrial laundry does for our uniforms. Just thinking logically, the same would really go for a hat. I guess it would sit in the same boat, but I don't know what the standards say about the hats.

3. Instrument Tracking Guideline (ACORN 2016)

> Researcher: Is there a rule or a standard that governs that particular aspect for the handling of the stickers?
>
> Susan: I don't know if there is a hospital policy on that, not that I'm aware of.

4. Staffing Requirements Standard: Standard Statement 3 Criteria 4.2 (ACORN 2016)

> Researcher: So, where you talk about the staffing and the three people in every theatre, especially times when the anaesthetic nurse then has to scrub and assist how do you see that sitting against the standards around staffing?
>
> Claire: I'm not sure because I'm not sure what it says.

Making a personal choice

Personal choice plays a significant part in compliance with rules and standards and can override 'knowing' what a standard or rule says. I observed that the nurses in the theatre were all wearing neck chains and due to the V-neck design of the theatre tops, the neck chains were not contained within the uniform. I asked Claire her decision making around that practice.

> Claire: I guess I generally don't ever wear my rings or my earrings because I know hand hygiene's impeded with rings and I'm always nervous that an earring might fall out, but I guess I've convinced myself that a necklace isn't going to fall off or contaminate anything, but that's not necessarily true. I am wearing my necklace because it's sentimental to me.

Claire makes the intentional decision to deviate from the standard on theatre attire because her necklace holds sentimental significance to her. ACORN Standard: Perioperative Attire, Standard Statement 8, Criteria 8.2 states 'personnel shall remove necklaces, except where they are able to be fully enclosed within the perioperative attire' (ACORN 2016). Wearing a neck chain that cannot be contained within the uniform departs from the established norm and Claire breaks this rule out of personal choice.

In summary, participants see experience as the development of knowledge and skills across the passage of time that is not solely dependent on longevity. Participants recognise experience as a key attribute for their own individual performance and the overall performance of the team. The way that the participants work is the embodiment of their knowledge, skills and experience. 'Knowing how' is embodied in practicing without conscious thought and is eloquently summed up by Benner (1984) who states 'performance without conscious awareness is knowledge being used'. On an individual basis experience informs a decision whether to break the rules in a given situation.

Five of the participants were experienced perioperative nurses, whilst the sixth (Louise) was very inexperienced both in terms of longevity in the perioperative setting and in nursing generally. However, despite the lack of 'time' in the role, her colleagues viewed her as having high level of non-technical skills and this made her a valuable asset by enhancing team performance and taking the pressure off other team members to have to think for her. Individuals having non-technical skills are a significant positive influence on team performance.

Having non-technical skills - 'They've just got it'

The definition of non-technical skills used in this study is the 'cognitive and social skills that complement the technical skills for safe and effective practice' (Mitchell et al. 2013).

The data highlights a range of attributes that perioperative nurses view as being valuable to the team in achieving the goal of getting the job done. 'They've just got it', encapsulates the value that the participants place on themselves and their colleagues having good non-technical skills. The following two exemplars richly describe this concept:

> Sarah: I think it's something innate. I think they've just got it. They are very intuitive. And I am sure you have too, worked with some people that know it, they understand… I think it's an intuitive thing a lot of it and then it builds up to experience as well and just clicking in.
>
> Claire: We've got some new girls who are just fantastic in different roles that they do and they haven't been nursing for a long time, but they are just brilliant. The way that they do things and their forethought about things, the ability to anticipate things and be aware of everything that's going on, not just necessarily what they're doing.

Codes relating to non-technical skills included:

> 'It gets put in their hand'
> Anticipating
> Understanding surgeon's needs
> Keeping an eye on things
> Choosing an appropriate time
> Being aware
> Being organised
> Prioritising
> Being in control
> Multi-tasking
> They've just got it'

These codes were sorted into the categories of situational awareness; anticipation; forethought and task management. Together they form the concept 'they've just got it'. These categories form the headings of this section.

Situational awareness

Situational awareness is a valued non-technical skill and participants recognise that not all perioperative nurses have this skill. With situational awareness, the nurse is aware of other things that are happening around her besides the task at hand. Situational awareness is an individual's cognitive ability to maintain attention and respond to changes within their immediate environment (McClelland 2012) and is a similar concept to being vigilant. Being vigilant is recognised by Susan as an attribute:

> Susan: People are pretty vigilant in actually doing it [applying stickers to the form], so in that respect everybody tries to toe the line. It's not something that people are haphazard about; people do genuinely try to follow the procedure.

The following memo provides examples of where an experienced nurse demonstrated situational awareness and a student demonstrated that he had not yet developed this skill, highlighting the difference between an expert and a novice:

> **Memo** (8 Oct 2015): Susan was very busy this morning being the only scout so she was completing paperwork, entering information on the computer, opening the bundles for the scrub who was ready to gown and set up and discussing with the surgeons what their requirements were. The surgeon said he wanted to use mono-polar diathermy and this took her out of the room briefly to get the item from the supplies trolley. On her return, she began opening sterile supplies for the scrub and I could see her looking across at the patient from time to time. The patient was asleep and the surgeons were beginning to position the patient. I wondered if Susan had remembered that the patient now required a diathermy plate. A nurse came in to assist and immediately on seeing her Susan said, 'can you put a plate on?' Amongst all the other things she was doing, Susan had remembered she needed to this. This is an example of situational awareness.
>
> Also in the theatre was a student who was observing. Susan was showing him how to open a sterile packet and present it to the scrub nurse. The waste container was between but behind Susan and the student and as each packet was opened the student turned to put the paper in the bin. In doing so though he took a few steps back each time toward the sterile gown trolley. He was completely unaware of his proximity to the trolley despite Susan telling him about the sterile field. Such was his concentration on the task at hand he had no situational awareness.

Susan was fully aware of everything that was going on around her whilst the student was so focused on the task of opening an item he was totally unaware of anything else. This illustrates the importance of situational awareness as an individual characteristic but also the benefits it brings to the team.

Louise had entered nursing as a mature aged student and had less than 9 months of EN experience and less than 3 months of perioperative experience when I observed her in practice. The next exemplar highlights her awareness of what is going on around her and her good listening skills learned in her 20 years in a previous occupation:

> Louise: I seem to put the surgeon's voice first. If I segregate his hearing, it's always the surgeons voice first, because they're the ones that know what they want. I guess I just pick up on their body language and for example, the look on their foreheads, or if they're talking and they're happy-go-lucky and then all of a sudden it goes quiet, it's like oh what just happened. So, I just become more centred on that. General chitchat I don't worry about so much.

Whilst Louise does not have perioperative nursing experience in terms of years of practice, she has life experience that she brings to the role. Her listening skills are so well developed from her previous job that even when focused on a task, she remains attuned to tones and tensions in background conversation and atmosphere and can bring herself back to the moment. Her colleagues recognise her awareness as a skill that is beneficial to the team despite her inexperience in the technical aspects of the role. Louise is highly cognisant of the concept of awareness and sees herself becoming less focused on the task at hand, as her experience builds:

> Louise: And I think with hernias now, I've scrubbed for a few hernias, so now I can focus on the here and now, without getting tunnel vision, because I can sort of still see the split way.

Louise aptly describes the focus on the task at hand as having 'tunnel vision'. Being able to complete tasks as well as focusing on the here and now, she describes as seeing things the 'split' way'. This indicates Louise is still at the novice – beginner stage of practices where she moves from the focus on the task to being aware of her environment. Whilst the two things are not happening concurrently yet, Louise is cognisant that as she becomes less focused on the technical skills, she becomes more aware of what else is happening around her, indicating the development of the non-technical skill of awareness. Louise attributes this to the experience she brings to the role from her previous occupation. What she has had to do is to retrain herself into knowing what and whom is important to tune into in her new environment.

Anticipation

Anticipation is the second non-technical skill identified by the participants as being a valuable attribute for personal and team performance. The following memo describes my observation of anticipation in action:

> **Memo** (25 Nov 2016)**:** It was obvious to me that Claire was anticipating the surgeon's needs as she was getting things ready that he needed next. For example, she anticipated the scales would be required soon and asked the scout to prepare them. She anticipated he would need a wet pack to lie across the first breast when he was ready to start on the other breast so had one prepared and ready to hand up. She anticipated when he needed the Morrisons to hold the breast tissue after the incision and had it in her hand ready to pass. She prepared the drains ahead of time so they were ready to hand over when requested.

Like situational awareness, anticipation is also a skill that some new nurses also exhibit. In a conversation with Louise about what her priorities were when she was setting up for case she stated:

> Louise: It's basically what they're going to need. There is no point having all your packs and everything nice and neatly sorted over here, but not have your instruments ready for them. They need a knife to be able to make incisions and they need their ports and stuff like that, so knowing what they need first and having that ready.

Knowing what the surgeon needs and having that ready is demonstrating the non-technical skill of anticipation. The closely linked skills of anticipation, task management and situational awareness facilitate being organized and preparing in advance for situations yet to arise. For Sarah anticipation is part of being an advanced practitioner:

> Sarah: I think that's someone who knows their stuff and can anticipate, knows what's going on, can know when something's deviated from the norm and picking all that sort of stuff up as well.

Forethought

Forethought is the third of the non-technical skills identified by the participants as being a valuable attribute in a team member. Forethought is the ability to look forward and plan for future events. Forward planning is also a way of working that participants identified as helping get the job done. Forethought is closely linked with task management and being organized. Forward planning is important to the participants for several reasons. They can be properly prepared for the next case or list; things go more smoothly and they know that the doctors will get upset if things are not there that they need so they work to avoid that. What they do now makes it better for the next patient, even though it means that they are not present with the patient they have on the table.

> Jane: …and planning for future lists for patients, which is almost as important as the patient you've got there because they're future patients.

Making decisions to deal with future events is important for forward planning and being prepared. For things to go smoothly for a list the next day or even the next week pre-planning is required and this is a significant part of a senior perioperative nurse's role. So much of what is due to occur in the future is dependent on what the perioperative nurse does (or does not) do today and participants are highly cognisant of that. So, as well as fulfilling a direct patient care role and managing the list in the here and now, participants also had to be thinking ahead to the next case, the next list or even the next week's lists. This not only takes them away from their core role of scouting for the cases on the list, but also creates pressure to get everything done:

> Susan: Well it's all about forward planning. What's the next operation, what's the next surgery, have I got all my stuff ready for that? But that's making sure you are ready for the next case. You know if you haven't got something, it's an opportunity to get all your stuff together beforehand.

> Susan: Yes, I feel there a constant pressure to get all these things done but I realise it's taking me away from my core job.

Susan sees the lack of forethought as a negative in her colleagues and believes it to be a skill that many nurses have not been taught or learnt. She links forethought to experience and actively tries to teach this skill to junior staff. She also acknowledges that some perioperative nurses, who have experience in terms of years, do not necessarily have forethought. This again highlights the common theme that the 'experience' that is valued by the participants is more than just years on the job; it is other skills and qualities:

> Susan: Like for example I went into a theatre one day to relieve the scout for a drink. It was a long case and he was just sitting there, just chit chatting. When he went, I didn't sit down for 20 minutes finishing all the things that to me needed doing. Part of that is this personality but part of it is efficiency. I corrected things in the computer that were wrong, I did the paperwork that he hadn't done and I restocked the blankets, the hot box. I did his shopping list and I remember thinking to myself well you've been sitting here probably for last half hour and I come in here and don't stop for 20 mins doing all the things that I could see needed doing so I think that's a skill not a lot of people have. I also think comes with experience to a degree.

Task management and prioritising

Successfully balancing all the activities that constitute the work of a circulating nurse and team leader is key to getting the job done. Senior perioperative nurses are not only responsible for their own direct/indirect patient care tasks as either a scrub nurse or a scout nurse, they are often also the team leader in the theatre responsible for managing the list and for the oversight and teaching of junior staff. Managing multiple tasks is therefore a key characteristic of a senior nurse's role as I reflected on in the following memo:

> **Memo** (18 Oct 2015): When I was observing Susan, I became aware that two of the things she was doing regularly was receiving and responding to information. On one occasion, the surgeon was giving Susan information about the next patient. This was important information that would require Susan taking some action but not immediately.

When I asked Susan about this she said she filed this information with the aim of returning to it at an appropriate time and acting in response to it. There were several occasions where participants referred to the need to complete multiple tasks, some immediately and others over a period of time. This got me to thinking about how perioperative nurses manage multiple tasks, how they hold the information and remember it later and I asked this of Susan:

> Susan: That's a good question. I don't know, I haven't thought about how I do it. I know I keep saying that a lot of it comes down to experience, being able to multitask. That probably helps a lot more than what I think. In terms of prioritising tasks, I guess you prioritise setting up for that case initially. You always have to be thinking ahead, planning the next case, planning when to send for it, checking the next set up. You've got that in your mind but I guess you just get that case going first and then when you are set up and ready, you've got time to check if the next set up is out, or ring the sterile stock room girls to get it out or check with surgeon what is happening next.

For Sarah time management skills enable her to decide what task needs to be done when. She works back from when the patient is required in theatre to ensure that ward staff has sufficient time to prepare the patient before she sends for them. Her experience in the role also means she knows how the ward works so this knowledge feeds into the management of the tasks and the timing:

> Sarah: It's just a time management thing in that there is no point sending for the patient if they're not showered and shaved. It depends on who is on the ward whether these things have been done and whether the message from the reception has got to the nurse. So, you give them a certain period of time, you ring and check before you ring waiting bay. Yes, I think that's just a time management thing just knowing when to check.

Prioritising tasks is key to keeping the list running smoothly and being prepared for the next patient or list:

> Susan: In terms of prioritising, I guess you prioritise setting up for that case initially. You always have to be thinking ahead, planning the next case, planning when to send for it, checking the next set up.

Claire finds she cannot rely on her memory especially if interrupted and she uses different strategies for remembering things when faced with multiple tasks including writing things down and sharing information with the scout. She is assisted in being able to anticipate what is coming next and determining what tasks are required to be completed next by familiarity with the operation. This demonstrates the link mentioned earlier between anticipation and task management:

> Claire: If it is an operation that I am familiar with, I know what's coming next and what we might need. With a similar operation, but a different surgeon that perhaps I don't know very well, then I find it more difficult to remember things like that. Sometimes I write things on the table with a pen – quite often actually.

Summary

This chapter has explored the factors that enable or constrain working in accordance with the rules that have emerged from the data. Whilst observation of practice showed that the participants frequently complied with rules, I also observed them on occasion, deviating from rules and standards. The data indicates that the participants made decisions to not follow standards or rules by the application of clinical judgement to the situation at hand. I also found that personal choice; gaps in knowledge and making a mistake (error) may also give rise to non-compliance with rules and standards. Importantly many factors present in the perioperative environment that enable or constrain practicing in accordance with the rules also

create pressure for the perioperative nurse. The next chapter explores the **phenomena** of 'feeling pressured' and 'being pressured' to get the job done and the **process** of 'shaping and reshaping practice' that perioperative nurses engage in as they respond to the pressures to get the job done.

Chapter 5: Findings continued

Chapter 5 is divided into two parts and continues the presentation of findings. Part 1 will explore the phenomena that emerged from the data of 'being pressured' and 'feeling pressured' and to get the job done. Part 2 will describe the way that perioperative nurses reshape their practice in response to pressure to get the job done.

Part 1: The phenomena of 'being pressured' and 'feeling pressured'

In this study, pressure is defined as a constraining or compelling force or influence on the decision-making and/or actions of the perioperative nurse.

Introduction

'Pressure' was a consistent term present in the data and analysis yielded rich descriptions of how pressure the perioperative nurse participants experienced pressure. The following is a sample of the codes that describe pressure:

> Constant pressure to get everything done
> Pressure to achieve
> Under a lot of pressure
> Pressure to make the list run smoothly
> Team make up creating pressure
> That impetus to keep it moving
> Do it quickly
> They hurry things and push things
> Pressure of not being able to complete tasks
> Running
> That speedy impetus.
> There's this speediness
> It just puts another pressure on us to be speedy.
> Being quick on changeover
> Hurrying up is just another pressure
> How many things you have to do in a short time

> Encouragement to work with haste
> Push, push, push
> Pressure of not having stock available
> Most of the time the pressure's on

In analysing these codes, it emerged that the perioperative nurse participants were describing two different types of pressure. One kind of pressure came from within the participants, the pressure they were feeling from practicing in a busy environment with competing demands on their time; meeting their own expectations of doing a good job and at the same time delivering safe care; the expectations of the organisation to get the job done and dealing with organisational conditions. The other pressure was coming from sources external to the participants, these being the doctors, other team members and team make up and issues with equipment and supplies. This external pressure created or added to the pressure felt from within. Sifting and sorting these codes led to the development of the phenomena (concepts) of 'being pressured' to get the job done and 'feeling pressured' to get the job done. These phenomena form the headings for this chapter.

'Being pressured' to get the job done

The categories of 'working with haste' and 'push, push, push' capture the codes pertaining to 'being pressured' and these categories form the sub headings for this section.

'Working with haste'

The perioperative nurse participants often found themselves having to hurry up and work quickly in response to 'being pressured' to get the job done. I asked the

participants where the pressure to hurry up and work quickly came from. Their responses highlight the sources as being doctors, colleagues and the organisation:

> Claire: The surgeons mostly and if it's coming from the anaesthetist, it's often because they know that the surgeon wants to get on with it. Sometimes a couple of the anaesthetists, you know that they're really quick and they want to get on with it and will grumble if you're fiddling around and not being quick enough.
>
> Jane: Well, surgeons and anaesthetists don't like to be kept waiting or feeling like they're waiting for longer than they feel is reasonable.
>
> Claire: But we're also very encouraged to have a quick changeover between patients and get on with the list so that people can go and there's not overtime and surgeons aren't kept waiting and all that sort of thing.

I asked Claire if she felt that pressure made a difference in terms of the way she did things:

> Claire: I guess sometimes yes because you might be hurrying up to do that and you might not have got some things ready that you should have. It might be something simple like the anaesthetist might say 'Come on let's just get the patient in, hurry up' and you'll realise you haven't put the drip up, or you haven't put the ECG dots on the anaesthetic machine. Just little things, but once you get to the point where you need the drip or you're about to put the ECG dots on and then you realise that you haven't got any on the top of the machine and things like that. So, that encouragement to work with haste.

This exemplar demonstrates that the pressure of having to work quickly sometimes led to things not being ready for the next patient. Pressure to work with haste also leads to reprioritising of tasks as described in the next exemplar, with the result that documentation standards are not adhered to:

> Claire: I think probably what gets, not missed, but put to the back because it can, is the paperwork. That might be left almost to the end of some short cases and you haven't done anything on the computer or any paperwork because you've been busy doing all that other stuff and there's this speediness and you have not had time to do it. So, then I will sometimes find at the end of the case and think, especially if you're doing the same cases

> for the whole list, like we might do eight carpal tunnels in a morning, I wonder how accurate sometimes it might be to get to the end of the case and if you haven't been scribing where the diathermy is the diathermy pads on and how much local's been given and all that and even the count. I do think that because of the speed, the count doesn't get written down straight away because you've opened everything, the surgeon is already scrubbed, standing there waiting for the prep and you're doing your count.

The outcome of having to work with haste is that tasks must be reprioritised and trade-offs made with the result in this instance resulting in non- adherence to documentation standards. Pressure leads to working in a way that is not in accordance with the rules.

'Push, push, push'

The perceived mismatch of available time with the speed of the surgeon, the number of procedures and the type of operations on the list may create pressure before the list even starts by. If cases do not go to plan, if complications arise or procedures take longer than expected, this builds more pressure on the perioperative nurse to work quickly to achieve the goal of completing the list on time. A constant, often subtle, but ever present pressure is the surgeon waiting in the background. Perioperative nurses feel pressure to not keep the surgeon waiting to avoid conflict or maintain a productive, collegial atmosphere for the team. They know the consequences of having an unhappy surgeon and work hard to avoid this. The next exemplar provides a rich description of a situation where Claire works to keep the surgeon and the team happy resulting in a trade off against documenting the count at the appropriate time:

> Claire: So, the surgeon is standing there waiting for their prep and you've only just opened up all the tools and just about to do your count. Then they're prepping and they're draping and then you have to do all that stuff, you can't just say, 'just a minute I'm just going to go over here to the computer and write down everything so that I'm up to date with that and

> write down this count and everything. I'll be five minutes before I can put the (diathermy) pedal down.' It just doesn't happen and I know we could say it, but it will make everybody really unhappy and most of the time, they're not huge cases. As I said, the acuity's not that big so a lot of our cases aren't massive joints with 40 or 50 different things to write on the count sheet. They are your basics like a prep swab, 5 raytec, 2 blades and an atraumatic (suture). So, most of the time, you can remember that stuff, even if you write it down 10 minutes after you've counted it. But I do sometimes when I come to write it down just ask the scrub nurse again, 'was that two blades we had or did I only give you one?' But yes, that rush does make you think 'I'd just like a few more minutes' to make sure I've got all the T's crossed and the I's dotted.'

Keeping the surgeon and therefore the team happy, constrains the ability of the nurse to adhere to standards of documentation i.e. record the count at the time the item is opened. Claire justifies her decision to leave the paperwork using the low acuity of the cases as the rationalisation for breaking rules.

Being pushed to work quickly may result in safety defences being breached and the potential for an adverse event to occur. Joanne recognises this as a barrier to keeping patients safe:

> Joanne: I think hurrying and rushing is a barrier to safety. It sometimes causes issues. I can think of a list where the surgeon was 'push, push, push' and that's when there has been an instance of wrong site surgery and why we now push back and not let that happen, we hope.

I asked Jane what pressure looked like for her:

> Jane: Expectations for keeping the list moving fairly fast but still providing really good patient care. …. So, there's the pressure from making sure the list will run smoothly and planning for future lists for patients and all this sort of stuff, which is almost as important as the patient you've got there because they're future patients.

The following exemplar is a powerful description of what pressure feels like for Claire:

> Claire: And so, the surgeon had scrubbed and I'm standing there with absolutely nothing, not even a prep ball and solution for him to preps and it was another 5-10 minutes before I really had everything even open to start getting organised and I was just on the back foot for a good 20 minutes because he was then into it, he'd started the incision and he was using diathermy. Yes, it makes it really hard. I had a full sweat up and I was stressed. I was thinking, 'I'm not organised and I hate this feeling of not being organised'. I really don't like it. And I didn't feel like I was on top of everything for the whole case. Even though I did get there, you're just worked up.

The speed of the surgeon can also create pressure for the perioperative nurse. Joanne describes a situation where she has to get paperwork ready in the morning because the afternoon surgeon is so quick, the staff can't keep up with him:

> Joanne: Whereas if I left it until the actual list, some of it wouldn't get done because it's not possible to keep up with him…. But you've got to do what is right for everyone and it's not just about speed. So, he is probably the most difficult to deal with when it comes to speed.

Here Joanne is cognisant that on the one hand the only way to keep up with the surgeon during the list is to cut corners and do the paperwork ahead of the list but on the other hand this is not necessarily right for everyone. Again, there is evidence of making trade-offs between doing what is right according to the rules and meeting the needs of the surgeon and the organisation to get the job done. Joanne is also aware of the pressure that getting away on time exerts:

> Joanne: Well I think with some of the surgeons and anaesthetists, there is a pressure. I think they've got something to do afterwards and sometimes it's the nurses have got something to do afterwards. They want to get away on time; they know there's no one going to be there to relieve them. Therefore, they hurry things and push things. Especially when there's a big list and you roll your eyes and you think well I'm not going to get off on time again.

'Feeling pressured to get the job done'

The second phenomenon (concept) that evolved from the data was the pressure that came from within the participants from practicing in a busy environment with competing demands on their time. These feelings of pressure come from the expectation that the participants feel to do the job effectively and efficiently and also from having to deal with the organisational conditions they face such as skill mix and team make up; availability of equipment and supplies; supervision of students and the perceived lack of time to complete tasks. Codes were sorted into the categories of 'weight of expectation' and 'oh can we just slow down'. Together they form the concept 'feeling pressured' to get the job done.

Weight of expectation

The picture that Susan paints in the following statement is redolent of the feelings expressed by all the perioperative nurse participants.

> You know you're swimming like this underneath [rapidly moving legs to stay afloat] but on the top, you look like you're going ok.

In the following exemplar Jane describes what pressure is for her and how it is driven by the expectations of others in her performance:

> Researcher: So, what sort of pressure are the surgeons or the doctors in the team putting on you? What does that look like for you?
>
> Jane: Expectations for keeping the list moving fairly fast but still providing really good patient care. Pressure to achieve. And some of that pressure, I know, we put on ourselves. I'm very aware of that. And some is from surgeons. Some is from staff expectations.
>
> Researcher: So, when you say that you put pressure on yourself, what does that look like?
>
> Jane: That's when I actually need to stop and I do stop and I go okay, what is the time frame I am expecting for this? Am I being reasonable and working through it logically rather than

> your emotions getting worked ups and that's what it's about and then I can stop and that's when the pressure comes off a bit.

Jane acknowledges that she is responsible for some of the pressure she feels and that this may be managed by pausing to reflect on what is causing the pressure and whether it is reasonable and logical to feel that way. However, in the busyness of the day, time for reflection is scarce and the participants desire to make the list run smoothly can override taking time out to reflect.

Sarah takes pride in her operating lists running smoothly and considers it to be a key part of her role that surgeons have everything they need and don't have to ask for anything. This is an expectation she has of her own performance and like other participants when supplies and equipment are not available this creates pressure for her:

> Sarah: I had on my list, 'I must order this, this and this.' Now, if I don't get a chance to do it for a couple of days then there's a bit of pressure to make sure that I do get that equipment here, even though I don't let the last thing run down to nothing, but I want it here so I know that if the surgeon has asked for something - we've never run out of stock or anything. And, I guess, if there's going to be any pressure, that's on me knowing that I've done a good job and they don't have to worry about that sort of stuff. That's a big old-fashioned but - you know? But, I guess, that's my own personal standards that I will always want to make sure that this theatre will run well for the surgeons and they've got no cause to worry about it.

Perioperative nurses want to do a good job but the weight of expectation when faced with problems that are often outside of their control and being involved in an adverse event or near miss can create significant pressure for them.

After transcribing and coding a series of interviews I noticed that when the interviewees were talking about events during which something went wrong or had the potential to result in patient harm they expressed strong feelings. These feelings were coded as:

I blame myself
I felt horrified
It's awful when you miss things
I felt terrible

In reflecting on this I made the following brief memo:

Memo (18 Jan 2016)**:** I have been taken aback by the strength of feeling expressed by the interviewees when they have realised they have missed something or done something wrong. I can see that the feelings they experience add to the pressure from within. The participants also perceive a culture a blame to exist and this creates additional pressure.

The following exemplars provide the context for the codes listed above:

Joanne: I blame myself. When I filled in the Riskman (incident report), I probably didn't even say anything about the student, because I felt so horrified that it had been part of that whole thing. The fact that he (the anaesthetist) had been talking to someone else and I'd been trying to support him from behind. So, I felt that I was to blame yes. So, I think as nurses, even though we talk about a no blame culture, we blame ourselves and we feel that to a large degree other people blame you, even though it's supposed to be no blame.

Claire: Some doctors are notorious for not signing (consent forms) so you are kind of aware with them, but if it's someone that always does sign and then you can get into theatre and the scout nurse will say 'the doctor hasn't signed it' and you think 'oh how did I miss that?' It's awful when you miss things like that, but it makes you realise how easy it is to do and why all the checks are so important. And still you know, the anaesthetist was saying 'I think we'd know by the time we get in here,' but it does happen.

Susan: I can think of case recently where we didn't do a time out and I felt terrible afterwards when we realised. I can't remember why we didn't get it done. It all happened in a flurry and I can't remember now, but when it came time to do the paperwork, I thought 'hang on did we do a time out? No. I think something happened, we got side tracked for whatever reason, I can't remember why now and it wasn't until the case started that we realised we hadn't done one.

Participants identified that they are reliant on the performance of other team members, staff from other areas of the department (e.g. Central Sterilising Department) and their managers to ensure that lists run smoothly. Correct equipment and supplies are required along with an appropriate skill mix within the team and getting these aspects right is frequently outside the control of the participants. When that performance is lacking it adversely impacts on the performance of the participant and creates feelings of pressure to maintain control and get the job done.

Availability of correct supplies equipment is a consistent pressure point for the participants along with having to find the items needed for the patient or list:

> Sarah: The other thing is the stock, 'has it arrived, where is it? We need this'. Chasing up that sort of stuff. As I said earlier, CSD not coming to the party with getting trays back or instruments back or losing them and that sort of thing.
>
> Susan: Yes, it does (create pressure), because you can see it (obtaining positioning equipment) takes time and at the moment we have a real shortage of orderlies as well. So, if it takes 10 minutes for the orderly to get there and then you have to go off 10 minutes to find the pieces so that's a fair amount of time wasted and can cause delays in your day for sure.
>
> Jane: But also, having all the equipment there. Things get moved on us.

The pressure that skill mix and team make up has on the participants is described in the following exemplar:

> Jane: It's also trying to get to keep things moving because some people will talk. And managing your staff, what they're like and their capabilities and things. And some days we know you look at the list and you go, 'I've got such and such. Okay. I'd better try and manage to curb their extra talking'. You know, things like that all create a little bit of pressure for me.

Sarah does not often feel pressure related to her speciality and she puts this down to her experience. Nonetheless when faced with an emergency situation and unfamiliar team members she does feel pressure:

> Sarah: Not very often in this theatre, I don't. Of course, with my experience I think I know it pretty well. Pressure in an emergency say, probably more so. If the other person who's been called in isn't in yet, the patient has arrived and you're relying on outside staff to help set you up and making sure that you've got everything ready to go. I think they're probably the main pressures.

Being expected to look after and supervise students is an additional pressure experienced by the participants. The following exemplar clearly expresses the pressure felt by Claire as she juggles her normal workload with supervision of students.

> Claire: Another big pressure is when we have students and we don't just have second and third year nursing students, we also have medical students that come for certain surgeons and if you've got a really busy day with lots of short cases and you have a nursing student and a medical student that you have to look after for the day and you've got short cases that might take anywhere between eight and 20 minutes per case and you've got 12 of them; and you're trying to look after and watch that the student nurse and the student doctor are doing the right thing and that everything's running smoothly with them, that they're not contaminating things or whatever which sometimes is fair enough, they don't know the area. Plus, you've got all your paperwork and all the computer data entry to do and there are only three of you in there doing it all. So, the student factor is quite big with time pressure sometimes.

Perioperative nurses are expected to not only comply with policies and standards themselves but to ensure the whole team complies. This leads to mismatch between the goal of the surgeon to get started and other team members who attempt to comply with the standard on Team Time Out:

> Joanne: Yes, like the Team Time Out, the scrub is trying to set up and they [the surgeons] sometimes don't listen. And sometimes with the surgeons push, push, push, they don't want to fight with them and say no, could we just do that.

Once again, the perioperative nurse makes a trade-off between meeting the needs of the surgeon and those of the organisation. The result is often that the perioperative nurse makes the choice to work in a way that is not in accordance with the standard. In other words, rules are broken to manage the pressure exerted by the surgeon to get the operation started. As Joanne observes:

> Joanne: I think if they are pushed hard enough they are tempted to take short cuts in their practice.

'Oh can we just slow down.'

As discussed in the previous chapter the participants perceived the lack of time to complete all the tasks they are expected to perform to be a significant source of pressure. The wish to slow the pace down to enable completion of tasks to ensure safe care is delivered is expressed by the participants in the following exemplars.

> Claire: You just have to be super organised I suppose and some days you're just not. If you're having a bad day you're not in that mindset and you just think 'oh can we just slow down.'
>
> Louise: Maybe getting anaesthetics to just slow down a little bit and saying right patient is on the table, let's do team timeout.
>
> Claire: That rush does make you think 'I'd just like a few more minutes' to make sure I've got all the T's crossed and the I's dotted.'
>
> Susan: I do find that an issue in that we don't get allocated regular non-clinical time so you're always chasing your tail.

Pressure to work with haste and manage the expectations of doctors, team members and the organisation has potential implications for patient safety and practice. The following exemplar provides an instance of where the perioperative nurse is being hurried to check in a patient so that the patient can be put to sleep and the operation commenced:

> Researcher: So ordinarily is there any pressure to check in in the patient quickly?
>
> Claire: Yes, most of the time the pressure is on. There's a few anaesthetists who are, I'll say 'slow', you know, they're not champing at the bit, but most of them want to hurry up and get on with it, so yes, there is an impetus and the surgeons are then onto the anaesthetist to hurry up and put the patient to sleep. So, most of the time there is that impetus to keep it moving and do it quickly so they can get them to sleep.

Louise describes her experience of not having adequate time to complete the check in:

> Researcher: Do you find that in the time that you have been here that there are barriers to being able to do the check in procedure as well as you are currently describing?
>
> Louise: Sometimes the anaesthetists seem to go 'wham bam' we're putting this patient to sleep, or they come in and they start putting the patient to sleep and once they make that decision to put the mask on somebody and they usually do that, they usually go straight from the bed, lay down, you're comfortable, bang it's on, ten deep breaths for me you know.

The check in of a patient at the theatre door and the TTO are key steps in ensuring the right patient is having the right surgery on the right site as well as communicating important information about allergies and medical conditions. Rushing this procedure may lead to wrong patient/side/site surgery and important things being missed. Being pushed to work with haste creates vulnerability in the patient safety system and may lead to rule breaking to get the job done.

Summary

Perioperative nurses face daily challenges to get the job done to meet the demands of the doctors, the team and the organisation. Meeting the demands of others as well as meeting personal standards in terms of being and being seen to be effective and efficient can create pressure. A dilemma the perioperative nurse participants often face is on the one hand, not wanting to upset the surgeon by slowing him/her down and on the other hand having time to accurately complete their tasks. They adapt their behaviour and work in a way that meets the needs of the surgeon and team rather than adhering strictly to the standards. Part 2 of this chapter will explore the ways that perioperative nurses adapt or reshape their work practices in response to pressure to get the job done.

Part 2: The process of reshaping practice

Introduction

Part 2 of this chapter will describe the process of reshaping practice that emerged from the observation of participant's practices and interviews. This research has explored what perioperative nurses actually do when they encounter barriers or pressures that compromise or limits their ability to get the job done. Analysis of the data indicates that perioperative nurses respond to pressure to get the job done by working in a number of different ways. Whilst on most occasions they practice in accordance with rules and standards, there are also several instances where they practice in ways other than following the rules.

Ways of working

'Ways of working' is a collective term that includes actions such as taking shortcuts, cutting corners, bending rules, breaking rules, violations, deviance, workarounds, making errors and rule compliance.

The following are a sample of codes that described the data on ways of working:

Breaking the rules
Cheating
Not following recommended practice
Cutting corners
Doing thing by hit and miss
Using clinical judgement
Using common sense
Toeing the line
Compliance
Taking shortcuts
Genuinely trying to follow the rules
That was an omission
Variations from standards
It was an oversight

These codes are sorted into four categories; rule compliance, making errors, toeing the line and rule breaking. Throughout observation it was clear that complying with the rules was the dominant practice paradigm even when working under pressure. However, it was also observed on occasions that errors were sometimes made, that strong group norms influenced conformance and that the same rules were being broken time and time again.

To set the scene for the reader Part 2 begins with a memo I wrote whilst writing an article for a unit of study based on the literature review conducted for this thesis. This memo highlights not only the complexity of the subject of rule breaking but more importantly how my pre-conceived ideas about rule breaking were challenged, informed and changed in response to analysing and synthesising the literature. This process is in line with Charmaz's view that the literature is itself data and forms part of the total picture that shapes the research and informs the findings (Charmaz 2014). This particular memo was the key to opening my eyes and mind to the influences and drivers of rule following and rule breaking in the perioperative working environment:

> **Memo** (1 July 2015)**:** When I first started thinking about my research questions, I was focusing on workarounds as this was frequently mentioned in the literature I was reading. Following discussion with my supervisors, I decided to broaden it to 'ways of working', which did not then limit my research to just 'one' way of working. My readings found reference to short cuts, cutting corners, rule breaking, rule bending, non-compliance, deviations, violations and errors. These are all ways of working that don't follow rules.
>
> I had in my mind that working in a way other than following the rules was a deliberate choice that nurses made. Perioperative nurses were committing violations because they chose to, because it was easier and it was a conscious decision to disregard the rules because it suited them not to follow them, they didn't agree with them so they did it their way. Whist this sounds harsh, I did not have any other frame of reference against which to challenge this perception.

As I commenced writing an article on rules and rule breaking for a unit of study as part of my course, I decided to write about the ways of working other than following the rules and to inform perioperative nurses that by choosing this path, they were committing deliberate violations and this had implications for patient safety. I wanted to tell them that the consequences of their actions may be unintended but the actions themselves were intentional.

Writing the article was a 'light bulb moment'. As I grappled with the multiple terms that described rule breaking and sought and compared these definitions with the work of James Reason, my views started to change. The concept of intention itself was the starting point for my change of view. I had a very narrow and naive understanding of this concept. I thought that if you did something with intention, it was deliberate and therefore you were making a choice. Not so simple!! A better understanding of this concept has shifted my thinking on this issue. The other area where my view was reasonably fixed was related to the concept of violations (another term for rule breaking). The work of James Reason showed me that violations may in fact be necessary to get the job done because the rules get in the way, may be absent, unclear, incomplete or unworkable for the situation at hand. So, when one considers the issue of 'choice' when breaking the rules, this understanding makes things look very different.

Reading about rules and how and why they are made was also of interest. It's paradoxical that the very things put in place to deliver safe care in a timely manner, may actually hinder achieving the goal. It is in fact no wonder that nurses find other ways to get the job done. This has opened my mind to other ways of thinking about my topic. I have recognised that I had a number of preconceived ideas about the topic that I wasn't really aware of. So, reading the literature on these issues has been a learning that will impact the way I approach my research.

Rule compliance

As mentioned in the introduction it was clear throughout observation that complying with standards and rules was the dominant practice paradigm, even when working under pressure. The following codes arose from the data in relation to rule compliance:

> Doing the right thing
> It's a rule of thumb
> Being vigilant
> Following policy and procedure
> Genuinely trying to follow the procedure
> Following the standards

Data from interviews supports my observations that the participants not only follow rules on most occasions but also have the appropriate knowledge that supports their practice. The following 4 exemplars from interviews provide examples of this and serve to highlight the depth of understanding and knowledge that underpins perioperative practice and assures the delivery of safe patient care:

1. Specimen handling

> Susan: We need to clarify with the surgeon what the name of the specimen is and what medium they want it put in, or whether they want fresh or frozen so we don't damage the specimen. If it's in formalin the policy states that the quantity of formalin should be 10 times the size of the specimen, which is why I went for the bigger pot with the foam. When writing out the labels we need to make sure we have got the right patient sticker and write the name of the specimen, the surgeon and the date and confirm that with the scout nurse before sticking it on the jar. Then documenting that in the patient's notes. We've got a register, where we put the same patient label and what specimens we had. When they are collected by the pathology staff they sign off as well to say they have collected them. Fresh specimens go straight to pathology, not to be left in the tub. I think the guys come down twice a day to pick up the specimens routinely. So yes, very important obviously to make sure you have got the correct information and to confirm with the surgeon if there are any offcuts of tissue, whether they want that to go as a specimen or not.

The information related in the exemplar above is in accordance with ACORN Standard: Specimen Identification, Collection and Handling, Standard Statements 2, 3 and 4 (ACORN 2016).

2. Opening sterile supplies

> Researcher: How do you know whether an item from CSD has been through a sterilising cycle?
>
> Louise: Some of them, particularly the leads and things have got a little strip and it'll show you a control colour and it'll show you the colour that it should be when it's sterilised. So always check that. Always check that it's clean and it's dry and its cold not warm, don't use them if they are warm, or wet. And the stickers that we take off and put on our tracking sheet, they change colour as well, so they go in one colour and come out another one. So just making sure that that's done. Like I said like everything is clean and dry and not warm.

The information related in the exemplar above is in accordance with ACORN Standard: Asepsis, Standard Statement 3 (ACORN 2016).

3. Labelling of IV's

> Claire: The IV line should be labelled for every single patient because IV lines have a 72-hour life and the cannula should be changed every 72 hours. We label them all and we certainly questioned why we do that for day cases because they're not going to be in the 72 hours. It's actually a recommendation, it came from our external infection control audits and they said even though we have so many day cases here, if we label every single line then we won't forget to label the ones that are staying.

The information in the exemplar above is in accordance with the guidelines published by the Centre for Disease Control (Grady et al. 2011).

4. Team Time Out

> Researcher: what does the team time out try to achieve?
>
> Louise: So, it achieves that they're having the correct procedure, it is the correct patient, it's the correct location, that they're having their right leg amputated, not their left. And things like that. So, it's just to make sure that we're all on the same playing field and that we're all looking out for the patients and that we're all aware of this patient.

The information related in the exemplar above is in accordance with ACORN Position Statement: Surgical Safety (ACORN 2016).

Knowledge of standards

There is recognition by all participants concerning the role that ACORN standards and hospital policies and procedures play in guiding and supporting practice and these policies were often referred to in interview. Again, this serves to highlight that participants are aware of the rules that govern practice and know from where to access them:

> Joanne: It's always there in policies and procedures (correct information pertaining to practices).
>
> Susan: You follow the standards most times.
>
> Claire: We've got all our national standards now that are really clear about all of those sorts of things, which is good.
>
> Sarah: So, from that point of view I find I try and read what our standards say.
>
> Susan: Yes, there is both an ACORN standard and hospital policy for specimens.
>
> Joanne: We look at the ACORN standards and whenever the new ones come out I always read it and compare it with what our practice is and then tell everybody that that's changed, or this is changed.
>
> Susan: Obviously understanding the standards that you base your practice on forms part of your knowledge.
>
> Joanne: The ACORN standards talks about making sure you have a procedure in place in your individual facility and we've taken that literally.

The genuine desire of the perioperative nurses to do the right thing was evident from the data but there was also recognition that this desire is not present in all staff:

> Joanne: And I think sometimes people don't understand the value of following procedures exactly. I think unfortunately there are some nurses who cut corners.

In this exemplar Joanne links not understanding the value of following procedure with taking short cuts. The barrier here may be a gap in knowledge or equally it could be that the nurse does know the value of following procedures exactly but choses to take a short cut in response to pressure to get the job done. As previous exemplars, have shown, Joanne herself admits to taking short cuts with doing paperwork for the afternoon list during the morning list in response to feeling pressure. Feeling pressured and being pressured creates an environment vulnerable to working in ways other than following the rules.

Toeing the line

Susan made the following statement about rule following in a specific theatre when we were discussing whether rules were consistently applied in all theatres.

> In the (speciality theatre), we all toe the line if you like but in other cases we tend to be more lenient, I guess.

The code 'toeing the line' was initially placed under the category of rule compliance because it appeared to be related to following rules i.e. in the speciality theatre we follow the rules but elsewhere we don't necessarily. What I came to see was that in this context 'toeing the line' was a capitulation to strong group norms. 'Toeing the line' was as much about complying with 'the way we do things in here' as it was to following rules. So, whilst on the one hand in the speciality theatre there were stricter rules around wearing of masks and an expectation that anyone working in that theatre wore a mask, on the other hand staff were expected to comply with group norms to remove items for resterilising before the final count was performed

which is a breach of standard. Group norms can therefore create pressure to work in ways other than following the rules. This category 'toeing the line', highlights firstly the power of group norms to influence whether to practice in accordance with rules or not and secondly that the participants reshape their practice according to the theatre and team within which they are working.

Making errors

In this study 'making errors' is defined as making mistakes or omissions or an oversight that led to a rule not being followed.

During observation of practice I noted three occasions where errors were made and these are described in the following exemplars:

1. The surgical count

> Researcher: I noted that in the first case the bag of rubbish from opening sterile supplies was taken out of the theatre before the first count but in the second procedure it was taken out after the first count. Are you able to tell me a bit more about this practice and the rationale?
>
> Sarah: The bag of rubbish should be taken out before the first count is done, so that was an oversight on the scout's part.

Removal of items after the first count and prior to the final count is contrary to the ACORN Standard: Management of Accountable Items Used During Surgery/Procedures in the Perioperative Environment Standard, Standard Statement 4: Criteria 4.6. This standard states 'the instrument and circulating nurse shall ensure that all items remain in the room until the surgery/procedure is completed and all counts have been performed and deemed correct' (ACORN 2016 p.111).

2. Labelling of IVs

> Researcher: I noticed that in the orthopaedic list when I was here a week or so ago, you labelled the IV line each time, whereas the list yesterday for the few occasions that an IV line was put up, you didn't put a label put on.
>
> Claire: Yes, that's an omission on my part.

In each of the exemplars above an error was made that was readily acknowledged as such by the participants. In neither case were they aware that they had made a mistake until I raised it with them. This demonstrates the 'human factor' element of day to day work where despite rules and standards and safety mechanisms put in place to reduce the risk of human error, mistakes do just happen. In the next exemplar feeling pressure led to an error.

3. Infection risk

> Joanne: Another thing that happened here was there was a drip left in the theatre. So, the patient was disconnected from the drip and the drip was left in theatre and not removed at the end of the case. And then that drip was reconnected to the next patient instead of having a fresh one. So, we talked about what we do here now, is that we don't set any drips up now, until everything is cleared from the room. Also, we're supposed to take the drip with us out to recovery, even if it's disconnected, so it's not in the theatre. Having said that, from time to time there is still one in theatre. And one of those instances, I can say, because it was me, that the anaesthetist had a student with him and was talking to the student all the time. And so, he wasn't paying as much attention as he would normally do. The fact was that I should have removed it. But because he was talking and teaching I was doing a lot of the other stuff around the places and that's what happened. Before I realised what he was going to do, he'd done it (inserted the previously used IV into the next patient).

Infection prevention principles as outlined in ACORN Standards: Infection Prevention and Asepsis (ACORN 2016) assist in minimising the risk of transmission of infection, hence the importance of removing any items used on a previous patient before the next patient enters the theatre.

Errors can and do happen. Sometimes it is an oversight or an omission where there appears to be no underlying reason for the error other than the fact that we are all human and humans make mistakes. At other times, organisational conditions such as having a student present and routines being upset as a consequence, can create pressure and an environment that is vulnerable to mistakes occurring.

The following section explores rule-breaking behaviours noted during observations of the participants as they went about their daily practice.

Rule breaking

In this study, rule breaking is defined as actions such as taking shortcuts, cutting corners, bending rules, breaking rules, violations, deviance, workarounds where practices deviate from established norms and standards.

When it came time to observe the participants I had discarded my pre-conceptions about rule breaking behaviours and was open to seeing the way they practiced, through their eyes. I was attuned to those practices that were not in accordance with the standards and rules and where I observed such practices, I noted these and I raised them during interview.

Five exemplars will now be presented that describe an example of rule breaking, each made up of the observed practice, the exemplar from the interview that followed and my interpretation of the event. This will be followed by a memo I wrote outlining an observed workaround and the implications this has for patient safety.

1. Checking trays

Susan is scrubbed for a procedure and as she opens her tray she hands off the tray list to the scout nurse, an experienced colleague with whom she frequently works.

She does not check the trays against the list with the scout. This is contrary to the ACORN Standard: Management of Accountable Items used during Surgery/Procedures in the Perioperative Environment, Standard Statement 6: Criteria 6.2 that states that 'the contents of each instrument tray are counted by two nurses, one of whom is an RN…' (ACORN 2016 p.113).

> Susan: The protocol is that we should check the tray lists as part of the count before and after the procedures. As I say I think you have to use your experience and your judgment and sometimes common sense has got to prevail you know. As I say if it's a small finger for example, you are not going to lose a pair of scissors in there, you may lose them in the linen but I don't feel that jeopardizes patient safety whereas if I didn't do the tray list on a thoracic case for example or a laparotomy, well that wouldn't sit comfortably with me. And again, depending on who you are working with and the level of experience in the theatre because sometimes it comes down to efficiency as well of running the theatre list. If there are 2 experienced theatre nurses in the theatre you know it can be time consuming to do a tray list for something that you know well and for a minimal or quite remote risk of losing something in the patient, again plastic surgery, so it does come down to efficiency sometimes as well. Two experienced people are you happy with the tray, yes great. You've done your count so there are certain items on your tray that get counted.

Susan recognises that by not checking the tray list with the scout she is practicing contrary to standards. She does not however consider this to be breaking the rules because she is applying what she calls her 'clinical judgement' to a certain situation. In this situation, she rationalises that in a small plastics case instruments are just not going to be left in the patient and consequently it makes no sense to her to check them with the scout. She justifies her actions by applying logic to the given situation but notes however that this logic would not apply in larger cases. Susan makes the decision not to check the trays when there is another experienced person scouting because it is more efficient and saves time. She makes the point that if she is unfamiliar with the tray or if the scout is junior, she does check the trays. Her behaviour is therefore adapted to the situation based on familiarity with the trays and/or experience of other team members and the desire to be efficient.

2. Opening sterile supplies

Claire is about to scrub for a procedure. There are only 3 nurses allocated to the theatre, herself as scrub, the scout nurse and the anaesthetic nurse. The scout nurse is at the patient's side reassuring the patient while the anaesthetic nurse is assisting the anaesthetist. Claire opens her bundles, opens her gloves onto the gown and glove trolley and proceeds to open her sterile supplies into a sterile bowl. This is contrary to ACORN Standard: Asepsis, Standard Statement 3, Criteria 3.12 that states that 'perioperative nurses have a duty to not flip sterilised items onto the aseptic field or into a receptacle to allow the instrument nurse to adequately monitor the introduction of items onto the aseptic field' and criteria 3.13 states that all other items (other than large items and rigid containers) are to be dispensed directly to the instrument nurse (ACORN 2016 p.202).

> Claire: Then you're in this dilemma. I'll open everything I can that's safe to open and open it onto the table and place it into a bowl and try and do it away from the instruments and away from your main table and you don't want to be opening too many things into the bowl because then once you've got quite a few things in there, you think if I did contaminate something as it went out, then I'm wasting all that other stuff that's already in the bowl that I've opened. So sometimes it's hard. It allows you to have everything organised in a timely manner so that it all flows, you know, so the patient is not lying on the table for another 15 minutes asleep and nothing is happening – all that sort of thing.

Claire makes the decision to open the sterile supplies into a bowl because she knows that the scout nurse is attending the patient and therefore will not be able to open her supplies. This will mean that once scrubbed, she has stand there and wait for the scout to finish with the patient before she can set up. This will delay commencement of the procedure as she will not be ready when the surgeon is scrubbed and wanting the prep. So, to save time, lessen the amount of pressure she feels, reduce the amount of time the patient is waiting and to be ready for the

surgeon, she opens her supplies into the sterile bowl. Claire recognises that this practice is contrary to ACORN standards.

3. The surgical count

I observed that on completion of the first stage of the procedure that the scrub nurse handed off some instruments to the second scout nurse who in turn checked the items with Sarah (1st scout and team leader) before removing them from the theatre and placing them on a trolley to go to CSD. This practice is contrary to the ACORN Standard: Management of Accountable Items Used During Surgery/Procedures in the Perioperative Environment Standard, Standard Statement 4: Criteria 4.6 that states 'the instrument and circulating nurse shall ensure that all items remain in the room until the surgery/procedure is completed and all counts have been performed and deemed correct' (ACORN 2016 p.111). At interview, I asked Sarah about this practice:

> Sarah: The instruments are taken out of the theatre when finished with, for the practical purpose of getting them washed and re-sterilised. CSD are very slow on their turnaround and we wouldn't have those instruments back for the next day or if there was a break in sterility in the afternoon case.

Sarah makes the decision to deviate from the count standard because these specific items are a limited resource and she needs to ensure those instruments are available as a backup for the afternoon case should a break in sterile technique occur and/or be available for the next day's case. Sarah justifies this practice because the next operation cannot commence without these instruments and the adapting of this practice ensures they are available as a backup or to prevent delays or cancellation of future cases.

4. Instrument tracking

The next exemplar describes a situation where Susan was observed to place stickers from sterile items on to her uniform rather than directly on to the form. The practice of instrument tracking is guided by the ACORN Instrument Tracking Guideline (ACORN 2016).

> Researcher: I noticed when you were opening packets that you stuck some of the labels on your hand and on your uniform. Is that a routine thing?
>
> Susan: It can be, ordinarily in the ideal situation I like to have the tracking form there and I just stick them straight on from a safety aspect because then you don't forget to put them on. Today I did notice that I was doing that.

Illustration 1 – attaching tracking stickers to uniform rather than directly onto form.

The final exemplar is based on a discussion with Joanne rather than an observed practice. However, both the practices raised by Joanne were observed by me on several occasions and are examples of practices where the standards and rules are routinely breached.

5. Team Time Out and the count

During an interview with Joanne, she raised that sometimes, perioperative nurses took short cuts or cut corners when they were hurried. I asked her if she could provide an example and she responded:

> Joanne: Well you could theoretically say, when you are doing the TTO and the anaesthetic nurse isn't in the theatre but the surgeon wants to start and he's started to prep, you might have to do the TTO before everyone is present.
>
> I think with things like the count, they might not go back to the beginning. You know it says in the standard, if you get interrupted you are supposed to start again. If they are under a lot of pressure, they may say 'where were we, 6 ok seven, eight, nine'. That sort of thing, rather than saying no I'm going to go back.

The TTO is regularly performed when some members of the team are absent highlighting not only a frequent breach of standard but also inconsistencies in practice and ambiguity around the rules that underpin this practice. ACORN Standard: Management of Accountable Items Used During Surgery/Procedures in the Perioperative Environment, Standard Statement 3: Criteria 3.4 (ACORN 2016) requires that the count be recommenced if there is an interruption to reduce the risk of inaccuracy. In both these scenarios, the pressure of meeting the needs of the surgeon around timely commencement and completion of the surgical procedure leads to working in ways other than following the rules.

The exemplars above provide instances of practices that are not in accordance with the rules and establish links between the rule breaking and the phenomena of 'being pressured' and 'feeling pressured' to get the job done.

The following memo describes a situation I observed where participants implemented a practice essentially to work around a barrier of time limitation and accessibility to paperwork. What this highlights is the potential implications for patient safety of a workaround:

> **Memo** (17 Nov 2015)**:** The process is that the stickers from the sterile packages are applied to the tracking form so that items used on the patient can be traced back to an exact sterilisation cycle should a recall be made. However, the multitude of packages needing to be opened, the number of people opening them and the accessibility of the form have led to perioperative nurses working around the barrier of inaccessibility of the form, by placing the stickers on the backs of their hands, on their arms or on their uniforms while they are opening the packages and then sticking them on the form later thus saving time. This practice is however not without risk as the stickers may be lost between opening the packet and applying them to the form. (On one occasion I saw one on the uniform of a nurse in the tearoom). So, whilst this can be seen as a creative workaround to overcome the barrier of limited time and easy access to the form, it may have implications for patient safety in the longer run because if there is a recall, the link between the sterile item and therefore its sterilising cycles and the patient is lost.

The next section will explore the thought processes and decision-making of the participants as they reshape their practices in response to the demands to get the job done.

Reshaping practice

In this study 'reshaping practice' is defined as performing an existing practice differently to the established norm, standard or rule.

Discussions with the participants about ways of working that are not in accordance with following the rules revealed the following codes:

Using experience as justification for not following the rules
Justifying practices
Using experience
Making a judgment call
It's because we are experienced
Using discretion
Using rationale on which to base a decision
Using clinical judgment
Using common sense
I don't think it's detrimental to the patient
Making a conscious decision to break rules
I had that rationale in my mind

These codes present two sides of the same coin. On one side the participants use their experience/judgment/common sense/discretion to inform a decision to break a rule and on the other side they use their experience to justify and rationalize that decision. The interview provided the participants with time to pause and reflect on the decision-making process in which they engaged and this yielded rich description of how and why they made the decision to break rules or vary from standards in given situations. The following exemplars describe reshaping practice and highlight the phenomena of feeling pressured and being pressured that underlie the reshaping of practice.

1. Counting packs for a burns case

In this first exemplar Susan describes how the practice of counting packs for a burns case is reshaped.

> Susan: A good example of where there is contentious grey area is burns surgery dressing changes where you are using multiple packs to cleanse the patient. The standard and policy says we need to count those packs, but the time taken to do that, especially if you only have one scout to count out 30 odd packs that have been thrown into the bottom of a bucket. It's generally accepted we don't count packs for burns surgery. It didn't sit well with my understanding of the standard and policy that we should count all packs and raytec. There is no dissection or anything involved (in a burn dressing case) so we are not going to lose anything, there is no wound to lose a pack. Common sense tells me you are never going to lose a pack and if one happened to get wrapped in the dressings it is not a safety issue for the patient with that.
>
> So, people are just happy to say 'are you happy not to count the packs'. And the surgeons will always say oh we don't have to count the packs; they are quite adamant that we are not wasting time counting the packs when they want us to help them.

ACORN Standard: Management of Accountable Items Used During Surgery/Procedures in the Perioperative Environment (ACORN 2016) states that the purpose of the count is to minimise the risk of unintentional retention of an item. The standard defines and accountable item (an item that shall be counted) as 'instruments and other items which by their nature are at risk of being retained in the patient' (p.109). The standard also promotes the facility developing its own local policy where variations to the standard are implemented. The hospital policy refers to the ACORN standard and does not provide for a variation to this practice.

There are several issues at play here, a misinterpretation of the standard; applying a standard that may not be applicable in this situation; lack of support from hospital policy to vary the standard; conflict from perceiving rules are being broken and pressure caused by trying to apply the standard. In burns cases, as pointed out by

Susan, there is no risk of a pack being retained. Susan does not count the packs because her common sense tells her it is unnecessary but she believes she is breaking the rules in doing so. Underlying this scenario is the pressure that both the scout and scrub nurse are under if they count the packs to comply with the standard rather than help the surgeon. As Susan indicates the surgeon wants the nurses to help with the cleaning and dressing of the burns and complying with the count standard takes the nurses attention away from this, creating tension within the team and conflict in regard to the goals of different members of the team. To meet the needs of the surgeon, the perceived rules are broken.

Susan cites common sense as being the driver for deviating from the perceived rule. Common sense in this context though is something more. It is based on knowledge gained over a period of time by exposure to similar situations that packs just cannot be lost in this particular scenario and even if one was lost, it does not constitute a retained item and will not cause the patient any harm. So more than common sense is at play, it is also 'skilled know how'.

2. Restarting the count following interruption

In this next exemplar Claire responds to my observation that she was interrupted during a count and that she reshaped her practice because of that interruption:

> Claire: Most people are pretty good when you're counting, unless it's an urgent thing. I know when you're counting you have to concentrate anyway, but even when I'm doing other jobs, I really need to concentrate on one task at a time because there are already other distractions. So, yes, it does have an impact and I think I thought about restarting the count, but I was very confident that I hadn't touched anything and that I'd stopped in the middle of the packs, but technically I probably should have started again really. But yes, it is a distraction and then you're watching the operating table as well to see what's going on up there. But while you're counting, always usually while you're counting, they want a suture cut or something like that. So, it has the impact of possibly causing not counting correctly.

Claire knows that the rules that apply to being interrupted during the count state that you should start again as per ACORN Standard: Management of Accountable Items Used During Surgery/Procedures in the Perioperative Environment, Standard Statement 3: Criteria 3.4 (ACORN 2016). Faced with possible time delays that restarting the count would cause and the feelings of pressure that build from not being ready to help cut sutures or provide drains and dressings in a timely manner, Claire makes the decision to continue the count from the point of interruption. She reshapes her practice in response to feelings of pressure, a desire to meet the needs of the surgeon and avoid delaying the completion of the case.

3. Checking tray lists

In this exemplar, Sarah explains her decision to vary from the rules regarding the checking of the instrument trays against the tray list.

> Researcher: We talked a little bit about a term that you use, 'variations from standards' and that sometimes you make decisions to vary from standards based on experience. So, for example, you have made a conscious decision not to do the tray lists based on your experience. How does experience influence you to deviate from the standard?
>
> Sarah: I think it is because we're experienced nurses and that we know the trays so well that we can recognise if something's missing or not right, pretty well straight away. And because we don't have a million trays to open, we've got the set trays all the time. And there are things that we count in our mind, not openly, but you go through the tray when you're getting your instruments out in your own mind knowing that all the equipment - it's not that we don't consciously count them but unconsciously we are counting the trays ourselves all the time.

Sarah makes a conscious decision to break the rules regarding the checking of trays against the tray lists based on her experience and the experience of the team members. There is an element of trust within her team that all members know what their role is and perform their allocated tasks where possible without reference to other team members. The team dynamic evident throughout observation was to anticipate and meet the needs of the surgeons.

> Sarah: You probably observed that they (the surgeons) don't ask for too much; it gets put in their hands.

This desire to please and the pride felt in ensuring the surgeons always have everything they need without having to ask creates an underlying tension or pressure that in turns creates an environment vulnerable to breaking the rules.

4. Documentation

In an exemplar described in a previous section (page 88), Joanne prepares documentation in advance for patients on an afternoon. Through experience Joanne knows that the afternoon surgeon is very fast and if some of the paperwork is not completed ahead of time then keeping up would not be possible. She reshapes her practice to manage the pressure she would otherwise be under during the afternoon list. Completion of documentation for a future patient whilst another patient is on the table is fraught with risk and is contrary to best practice. Joanne is also aware it takes her focus away from the surgeon and the patient on the table, however the desire to 'keep up' with the afternoon surgeon overrides this and she reshapes her practice to meet the needs of the surgeon doing the afternoon list.

5. Dropped sterile item

In the next exemplar Susan adapts an aspect of aseptic technique when an item is dropped on the floor.

> Researcher: So how do you mentally process the potential conflict between what you know the standard says and making a judgment call (to use an item that has been dropped).
>
> Susan: It depends on two things. The staples yesterday, they came in quite sturdy packaging. If the paper side got wet, I'd still be doubtful it had been damaged as it's water resistant but if the plastic side got wet I'd probably just wipe that off. The paper packaging is more of an issue as it's not as sturdy. It also might come down to the availability of the item. Weck clips for example, we've got lots of those so it wouldn't be a drama if we discarded that and had to get another one. But if it was an instrument we only had one of, well obviously, if it's damaged it's damaged and there'd be no doubt about that. But I guess if you only had one of those for the operation and the packaging was still intact and you were happy with that, you would be tending to think, well I'm going to run with that because the packaging is still intact and we only have only got one of those and if I was going to send it up to re-sterilise it there would be a 3 hour wait and if we are going to need it for this case, I'm happy to use that because the integrity is still ok. Researcher: So, it's going back to something that you have said before quite consistently and that is that over and above understanding what the standard or rules say you are applying a level of clinical judgment in tandem with that rule. So not accepting the rule as black and white.
>
> Susan: Yes, that's right so there is a certain amount of clinical judgment there and a certain amount of knowledge of your supplies and equipment I guess. Someone more junior might not realise that is the only double ended whatever that we've got so that it is making a judgment call and using your prior knowledge so there are a few factors there I guess.

This exemplar highlights the decision-making process in which Susan engages when considering a situation she faces. ACORN Standard: Asepsis Standard Statement 3 Criteria 3.3 specifies that 'items are considered sterile only for as long as packaging is not compromised' (ACORN 2016 p. 201). The dropping of a sterile item on to the floor potentially damages the integrity of the packaging and should therefore be discarded. Susan uses her clinical judgment to determine the risk associated with reusing the dropped item and reshapes her practice accordingly.

The exemplars above are representative of the many examples in the data of participants reshaping their practice. From these and other exemplars several categories emerged that began to link and connect the **context** of the operating room environment with the **phenomenon** of feeling pressured and being pressured and the **process** of reshaping practice to meet the demands of getting the job done. In other words, the pieces of the jigsaw puzzle were beginning to fall into place and form the picture that is the substantive theory.

Summary

This research has explored what perioperative nurses actually do when they encounter barriers or pressures that compromise or limits their ability to get the job done. Analysis of the data indicates that perioperative nurses respond to pressure to get the job done by working in several different ways. Whilst on most occasions they practice in accordance with rules and standards, there are also a number of instances where they practice in ways other than following the rules. Applying the grounded theory, data analysis techniques of coding, sifting, sorting and theoretical sampling has led to theorising on what is happening here. The substantive theory that has emerged from this process will be presented in the next chapter.

Chapter 6: The Substantive Theory

Introduction

This chapter interprets and synthesises the findings put forward in the previous two chapters and presents the nascent theory that makes sense of and explains those findings. The aim of my research was to explore the ways that perioperative nurses work to get the job done and the implications for patient safety and practice. The nascent theory addresses this goal and increases our understanding of the experiences of perioperative nurses as they strive to deliver safe care in a complex environment with competing demands on their time. The ensuing discussion is a synthesis of the findings, the relevant literature and my own interpretations that 'culminates in a grounded theory' or an abstract theoretical understanding of the studied experience' (Charmaz 2104 p.4).

The theoretical understandings emerging from my research will be positioned in relation to the literature, dialogues and theories relevant to the area of study and demonstrate where knowledge and understanding have been extended. The approach I have taken is to include literature explored throughout the process of analysis and theorising. This literature may not therefore, have necessarily been included in the literature review (Chapter 2: Keeping Patients Safe) where the focus was on providing an overview of the relevant literature, positioning the research question in the context of the literature and evaluating the research problem in the broader context of patient safety. This approach is true to the constructivist grounded theory method in that 'engaging the literature goes beyond a short section of a paper or chapter of a thesis' (Charmaz 2014 p. 309). The result is that the relevant literature is woven throughout the process of theorising and development of the substantive theory and the literature tailored 'to fit the specific purpose and argument' (Charmaz 2014 p. 307) of my research. For example, the

concept of intentionality was not explored in the literature review, as it did not emerge as relevant until I was theorising about the way the participants were justifying their decisions to work in ways other than following the rules. The concept of intentionality then became data that helped inform the process of theorising.

The methodological framework for this study is constructivist grounded theory. This approach enabled an exploration of the experience of the perioperative nurse from their perspective. The previous 2 chapters presented the **context** within which perioperative nurses practice and the factors that enable and constrain practicing in accordance with standards and rules; the **phenomena** of 'feeling pressured' and 'being pressured' to get the job done that emerged from the data; and the **process** of 'reshaping practice' that perioperative nurses engage in as they respond to the pressures to get the job done. The context, phenomena and process together constitute the substantive theory that perioperative nurses reshape their practice in response to pressures to get the job done.

As a first step, this chapter will review the journey from coding to the development of concepts and theorising. This sets the scene for the presentation and interpretation of the key findings that emerged from the research discussed later in this chapter.

From codes to concepts

The process of analysing data helps to find meaning and develop concepts to build theory to explain the data (Charmaz 2014); that is to find answers to the question, what is happening here? The data analysis process commenced with the techniques of coding and focussed coding, whereby the data collected had labels or codes allocated. Codes were then compared with similar ones grouped together under main headings or categories. Further analysis took place by constantly comparing codes with codes, codes

with categories and categories with categories. This process resulted in some categories being elevated to concepts. The next step, which took place throughout the phase of data analysis, coding and constant comparison, was theorising.

Theorising

Charmaz (2014 p.244) describes theorising as 'stopping, pondering and thinking afresh' about the data. Throughout the data collection period, there were frequent pauses to reflect on the data gathered; engaging in constant comparison of the codes; ascertaining connections and linkages; and asking questions of the data. I wrote up these reflections in the form of memos, a grounded theory technique that assists in analysis of data and codes by 'defining ideas that best fit and interpret the data as tentative analytic categories' (Charmaz 2014 p.4). It was through this process that significant codes and categories stood out and developed into theoretical constructs. The following memo illustrates the first tentative steps to developing analytical categories to explain the data and make sense of the observations:

> **Memo** (7 Dec 2015)**:** I am starting to think on the lines that nurses adapt (reshape) their behaviour in response to circumstances or influences. There are links emerging here between the context in which perioperative nursing takes place, the ways of working, experience, decision-making and clinical judgment.
>
> During interview, the participants acknowledge they are not following the rules and make a choice/decision not to follow them. Is there a form of internal risk assessment going on based on experience? Is this just about clinical judgment? Is there another explanation?
>
> Often the intention behind the rule breaking appears to be honourable i.e. to save time, to keep things moving, to be efficient. This aligns with my recent reading of the concept of positive deviance. Does this explain the decision-making?

This memo was not only the first step to theorising by drawing on the data collected from observations, interviews, memos and the literature, it also helped to develop questions to take back into the field. This process is known as theoretical sampling

and helps to focus data collection on 'pertinent data to elaborate and refine categories' in the emerging theory (Charmaz 2014 p. 192). This process of refinement enabled further sampling until no new properties emerged from the data. Categories and concepts became more concrete and developed into an emerging picture that made sense of the data and brought to life the landscapes of the participant's experiences.

Conceptual framework

The following diagram illustrates the synthesis of the findings, the extant literature and my own interpretations as presented in the previous two chapters. The conceptual framework of context, phenomenon and process highlights the key categories and concepts that emerged from the data.

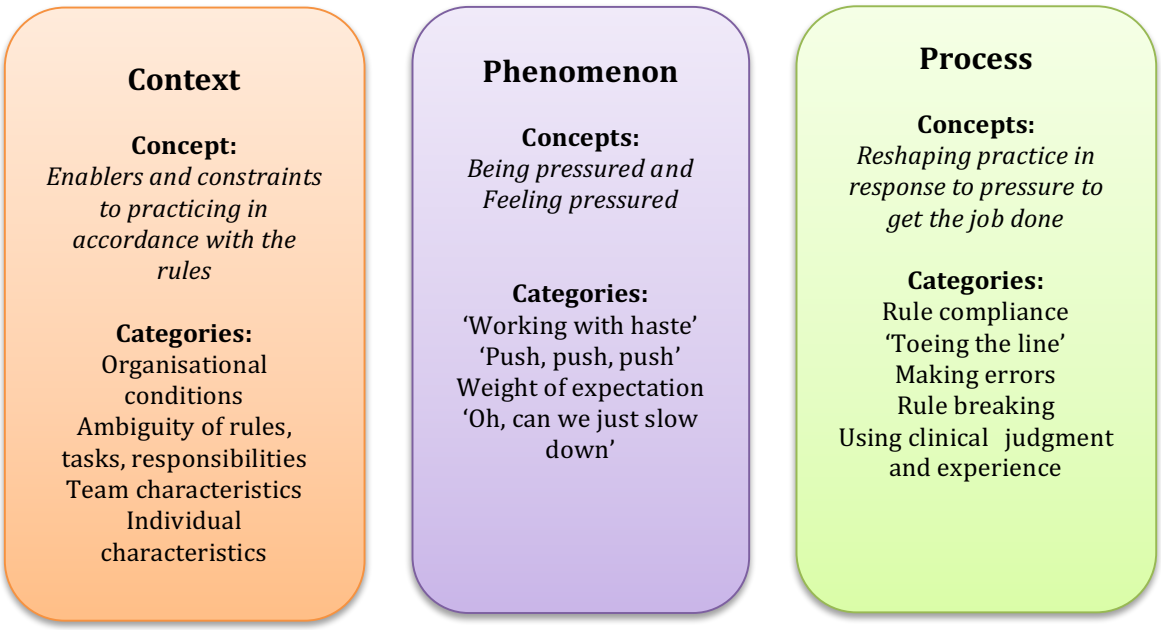

Diagram 2. Key concepts and categories

Context

Context is important on two levels. Firstly, it represents the world within which perioperative nurses practice. Secondly, the emerging theory is context specific as it is concerned with the process from the perspective of the perioperative nurses participating in my research and the researcher. The emerging theory is a co-construction of the respective understandings, realities and experiences of the researcher and the participants. The aim of my research was to explore and understand the experiences of the perioperative nurse and this is only possible by understanding the context within which the experience is situated. Carthey (2013 p.144) writes that 'human performance is shaped by the context in which it occurs…' and therefore understanding the social context and the factors that affect human performance is imperative. The findings indicate that there are factors within this context that can both enable and constrain practicing in accordance with standards and rules.

Phenomena

The aim of grounded theory is to explain complex phenomenon by converting them into abstract constructs and hypothesizing their relationships (Charmaz 2003). The phenomena emerging from the data are 'feeling pressured' and 'being pressured' to get the job done. These emergent concepts represent the experience of the perioperative nurse participants, as described by them. In other words, these phenomena are grounded in the data. The data has revealed phenomena that have qualitatively new properties that are described in my research as 'Working with haste'; 'Push, push, push'; Weight of expectation and; 'Oh can we just slow down'.

Process

Process in the context of grounded theory refers to the basic social processes evident in the data and data analysis. Charmaz (2014 p. 34) poses several questions

to assist the researcher understand and describe the basic social processes at play in the setting, for example: How do the observed social processes emerge? How do the actions of the participants construct them? Under what conditions do they emerge? Answering these questions assisted me to uncover the finding that the basic social process at play is 'reshaping practice' as the participants respond to the pressures to get the job done. This process influences the actions of the participants within the practice setting.

This research reveals connections between and within the context of enablers and constraints to practicing in accordance with the rules, the phenomena of 'being pressured' and 'feeling pressured' and the process of reshaping practice. It is through the course of theorising that the links and connections between the categories and concepts described in the illustration above can be explicated, leading to the construction of the substantive theory.

The next section discusses the substantive theory in more detail, followed by an examination of the findings through a Human Factors lens. The implications of the findings for patient safety and nursing practice will be examined using the Seven Levels of Safety framework developed by Vincent (2012) and the Systems Thinking for Safety framework set forth by Shorrock et al. (2014). The theoretical understandings emerging from my research are positioned in relation to extant literature, dialogues and theories, highlighting where knowledge and understanding has been extended.

The substantive theory

Emerging from my research is the substantive theory that perioperative nurses *'reshape their practice in response to being pressured and feeling pressured to get the job done'*. Whilst the participants mostly comply with standards and rules and express a genuine desire to follow them, there are circumstances where they make a conscious decision to work in other ways. Factors within the context in which perioperative nurse's practice can both constrain and enable practicing in accordance with the rules. Furthermore, constraining factors can lead to 'being pressured' and 'feeling pressured', which in turn constrains practicing in accordance with the rules. Decision-making underpins practice and perioperative nurses employ experience and clinical judgment in making decisions about the way they work. Whilst working in ways other than following the rules is intentional it is not done with the intention to break the rules, rather it is for another purpose; that is to improve patient outcomes and team and organisational performance.

The negative case

The substantive theory postulates that there are constraining factors that can lead to the phenomena of 'being pressured' and 'feeling pressured', which in turn constrains practicing in accordance with the rules. There is also a finding that at times the participants made a personal choice to break the rules for example Claire choosing to wear a necklace for sentimental reasons as described in Chapter 5 (page 112).

Making a personal choice to wear the necklace and in so doing deliberately breach the standard, was not however related to 'feeling pressure' or 'being pressured'. Whilst unrelated to the phenomena of 'feeling pressure' or 'being pressured', this finding does however offer insight into the role that personal choice plays in

decision-making and highlights personal choice as an individual characteristic that constrains practicing in accordance with the rules. It is therefore an important finding to acknowledge and 'name up'.

The finding that the participants break the rules about wearing jewellery through personal choice as opposed to 'feeling pressure' or 'being pressured' does not therefore pertain to the conceptual or theoretical development of my analysis. As such it can be seen to be an example of the negative case. Negative cases 'typically refer to data that demonstrate sharp contrasts with the major pattern that accounts for most of the data' (Charmaz 2014, p. 198).

The connections and links within and between the concepts that emerged from the data will now be expanded upon and presented under the same headings of context, phenomenon and process used in Chapters 5 and 6 and in Diagram 1.

Context: 'Enablers and constraints to working in accordance with the rules'

The findings from this research afford that whilst the participants mostly practiced in accordance with rules and standards, there were also instances where they practiced in ways other than following rules and standards. Several factors were identified that enabled and constrained working in accordance with the rules including interruptions and distractions; expectations; workload; team make up and dynamics; experience; and non-technical skills of individual team members. This concurs with other research suggesting that high workloads, productivity pressures, resource availability, deficient communication, inability to deliver timely care, unfamiliarity with technology and lack of awareness of policies or poor understanding of content are factors that impact on nursing actions (Debono 2013). Nursing is complex work and this derives from the changing condition of the patient; the need to coordinate multiple activities at any given time and avoidable factors

unrelated to the patient such as interruptions, supply disruptions and technology (Tucker & Spear 2006). The dynamic and unpredictable nature of the perioperative environment contributes the complex nature of perioperative nursing work. This complexity was evident in my research where I frequently observed participants adapting and responding to rapidly changing situations.

This is the context within which perioperative nurses practice and this context creates an environment vulnerable to errors and violations and where quick fixes to get the job done become tempting (Reid 2014). My research found that constraining factors at times, led to 'being pressured' and 'feeling pressured' to get the job done which in turn constrained practicing in accordance with the rules. In deciding to work in ways other than following the rules, participants 'reshaped' their practice in response to pressure to get the job done.

This research found that ambiguity/clarity of role; responsibility, task, method and expectation played an important role in enabling or constraining working in accordance with the rules. This emerged from the data in the form of inconsistencies in the application and implementation of rules and standards between perioperative nurses; between categories of staff; between theatres; and between specialties. The following exemplar is taken from a report published by the Victorian Coroner's Office and highlights the significant consequences ambiguity can have for patient safety:

A patient was admitted for lower abdominal surgery. The surgery and post-operative course proceeded according to plan, the patient responded well to treatment and was discharged home. Seven months later, the patient presented to the emergency department with a two-week history of lower abdominal pain. On investigation, a piece of silicone sheet was identified wedged between the bowel and abdominal wall during a CT scan. The patient was admitted for surgical removal of the silicone sheet.

What were the major contributing factors?

The silicone sheet introduced at the end of the procedure was not documented on the count sheet and therefore was not counted as part of the surgical count process.

The tail end of the sheet was not externally visible to alert staff to its presence during wound closure (Victorian Government 2014).

There were many examples of ambiguity in my observations of practice and these were described in previous chapters, for example the checking of tray lists; the count; the implementation of the Team Time Out procedure and the management of warmed sterile solutions. The role that ambiguity plays in constraining working in accordance with rules will now be discussed in relation to a theory of systems ambiguity developed by Gurses (2008) from a grounded theory study of the underlying causes for non-compliance in an ICU setting. The theory expounds the role of ambiguity of task, responsibility, method, expectations and exception in the consistency with which rules are applied.

I found similar patterns when applying Gurses' theory to my own research. For example, with the practices associated with the management of warmed sterile solutions in warming cabinets, there was ambiguity around the nature of the task (when the solutions should be dated); the method (what the required setting was for the cabinet and how long the solutions can be stored before use); expectation (what the acceptable practice is); and responsibility for the task (who should date

and rotate the bottles). This raises the question of what supports the existing practice? In this situation, it is an informal norm (this is just the way we do it). Because the rule is not clear a necessary or system violation occurs because the. In this instance the rule violation can be said to be justified; 'rule ambiguity creates the opportunity for organisational actors to ignore the rule' (Martin et al. 2013 p553). Applying Gurses' approach to inconsistently performed practices by considering the nature of the task, who is responsible for the task and the expectation around the task assists to identify where the ambiguity lies and actions to address the ambiguity and provide better clarity.

As discussed above, this research has extended the understanding of the context within which perioperative nurses practice and the factors that influence the perioperative nurse making decisions to work in ways other than following the rules. The next section will interpret and synthesise the finding that perioperative nurses reshape their practice in response to 'being pressured' and 'feeling pressured' to get the job done.

Phenomena: 'Being pressured' and 'feeling pressured' to get the job done

Perioperative nurses face daily challenges to get the job done to meet the needs of the patients and the demands of the doctors, the teams and the organisation. The **context** as described in the previous section contributes to the pressure particularly in the way that it can constrain rather than enable working in accordance with the rules. This research found that in meeting these demands, the participants experienced two different types of pressure. One kind of pressure came from within, created by the expectations of the participants to do the job effectively and efficiently. Dealing with the organisational conditions they faced such as workload; availability of equipment and supplies; supervision of students and the perceived lack of time to complete all necessary tasks also contributed to feelings of pressure.

The other pressure came from sources external to the participants, these being the doctors, other team members and team make up and issues with equipment and supplies. This external pressure created or added to the pressure felt from within.

Of significance is that 'being pressured' and/or 'feeling pressured' may increase vulnerability to finding ways of working that overcome perceived barriers and save time. For example, not checking tray lists for familiar trays and completing documentation ahead of time are shortcuts that improve individual, team and organisational performance. 'Being pressured' and/or 'feeling pressured' may directly influence a decision to practice in ways other than following the rules. For example, the perioperative nurse decides not to recommence the count after an interruption so as not to delay the completion of the procedure and to keep the doctors happy. Research has found constant pressure on workers to increase performance and productivity can lead to the modification of work practices to get the job done (Amalberti et al. 2006). Debono (2010) noted that an expectation that nurses will solve problems contributed to workarounds persisting. When faced with a problem, nurses often resolve the immediate issue but do not take further steps to prevent the problem recurring. This illustrates what Tucker and Edmondson (2003) call 'first order' problem solving. The problem is only resolved in the short term because the underlying conditions have not changed and it is likely the problem will recur. Workarounds developed by individuals can in fact be better than existing procedures and are therefore become an attractive way to get the job done. Improving safety requires perioperative nurses to engage in 'second order' problem solving involving communicating the issue and participating in finding solutions to the underlying conditions. This finding that the weight of expectation increases feelings of pressure experienced by the participants supports this notion.

Process: 'Reshaping practice in response to being pressured and feeling pressured to get the job done'

As stated earlier, the **process** influences the actions of the participants within the practice setting. The findings from my research indicate that in reshaping practice the participants use clinical judgment and experience to make decisions to work in ways other than following the rules. Decision-making, experience and clinical judgment are therefore significant categories that connect the context and the phenomena with the process of reshaping practice.

This research has uncovered a deeper understanding of the way the participants make decisions to work in ways other than following the rules. The phenomena of 'being pressured' and 'feeling pressured' contributes to the decision-making process in that it provides on many occasions the impetus that drives the decision. The process of 'reshaping' practice incorporates making decisions about when rules and standards can be modified to respond to the pressure to get the job done. In the memo below I reflected on the ways that participants reshaped their practice.

> **Memo** (13 July 2016)**:**
> Susan made the decision to deviate from the standard requiring the trays are checked to save time and be more efficient. She justified this practice by bringing it back to the patient in that she was assuring the list progressed and patients scheduled later on the list were not cancelled.
>
> Claire opened her own supplies into a bowl before she scrubbed to save time and eliminate the pressure she would otherwise have felt to be ready for the surgeon. She justified the practice by bringing it back to the patient who would otherwise be anaesthetised for longer due to the delay in the scout being able to open supplies for her.
>
> Sarah made the decision to remove instruments from the theatre after the initial count and before the final count in response to the pressure of not having the appropriate equipment ready for future cases. She justified this practice by bringing it back to the next patient who may be delayed or have surgery cancelled if the equipment is not processed in time.

> In each of these situations, the participants reshaped their practice in response to the situation hand, motivated by pressure to get the job done but at the same time having the patient's best interests in mind.

The examples of reshaping practice described in the memo above will be used as the basis for discussing three approaches to understanding rule breaking, these being work as imagined versus work as done; positive deviance; and the messy reality of practice.

Work as imagined versus work as done and the messy swamps of practice

This research highlights the fact that the way that nurses work is not necessarily the same as the way others think they work. Employing organisations, regulators and professional bodies based on their understanding of what the work looks like and how that work is performed, develop the rules, standards and policies that govern practice. However, there is often a mismatch between what they think 'is done' versus what is actually done.

Shorrock et al. (2014) calls work that others think you do 'work as imagined' and the messy work people actually do 'work as done' and purports a number of assumptions that underpin 'work as imagined'. Firstly, the organisation is like a complicated machine, secondly humans are a hazard and thirdly things go wrong and things go right for different reasons. These assumptions lead to a focus on incidents and what goes wrong rather than the normal routine day-to-day performance where most things go right as well as exceptional performance that can be strived for. In considering the assumptions Shorrock et al. (2014) offers an opposing view that is firstly, the organisation is a complex organism and not a machine. If one component of a machine breaks, a new spare part is installed and the whole machine works again. A system is more complex with multifarious and intricate interrelationships and one part of the system failing can have significant

flow on effects to the rest of the system. For example, a patient arriving late for a surgical admission may lead to a change in order of the operating list; the next patient on the list may not be ready; the correct equipment and supplies for the new patient may not be available; the radiographer may not be available; delays may lead to the last patient on the list being cancelled; and a change to order will increase the risk of wrong patient/ wrong procedure /wrong site surgery.

Secondly, Shorrock et al. (2014) argues that humans are an asset rather than a hazard; they perform well the majority of times and very rarely does anyone go to work with the intention of doing harm. As humans, we make trade-offs and compromises to make the system work well and do what makes sense to us at the time, considering the local context and situation at hand. He argues further that safety is created by adjusting, adapting and varying our performance and if we all stuck to the rules all of the time, the system would struggle. My findings describe the adjusting, adapting and varying that the participants engage in to make the system work and get the job done. Claire opens her own sterile items into a bowl so she can be ready for the surgeon and Sarah sends items out of the theatre before the end of the procedure so that they are ready for the next patient. These are trade-offs that the participants make in their everyday practice to make the system work and get the job done.

The third assumption was that things go wrong and things go right for different reasons. Current thinking is that things go wrong and things go right for the same basic reasons; it is the ability of the system to adjust and adapt to the conditions that leads to success or failure (Carthey 2013; Hollnagel, Wears & Braithwaite 2015; Shorrock et al. 2014; Wears, Hollnagel & Braithwaite 2015).

The notion of 'work as done' as being the messy reality of the daily work of perioperative nurses is consistent with the work of Schon (1987) and Street (1992) on the high ground and swamps of practice.

> *In the varied topography of professional practice, there is a high hard ground overlooking a swamp. On the high ground, manageable problems lend themselves to solution through the application of research-based theory and technique. In the swampy lowland, messy confusing problems defy technical solution. The practitioner must choose. Shall he remain on the high ground where he can solve problems according to prevailing standards of rigor, or shall he descend to the swamp (Schon 1987 p.3).*

My observation is that perioperative nurses do not deliberately 'flout' the rules i.e. it is not rule breaking with impunity; 'they genuinely try to follow the rules'. In the messy swamps of practice, perioperative nurses apply their clinical judgment and common sense and do what they think needs to be done. That this breaks rules does not appear to be an important consideration in the decision-making process. In the 1980's academics were discussing how to close the gap between theory and practice and proposed a new pathway that recognised the values and practices of practitioners (Street 1990). It is apparent that the path is still unclear and there has been little study on work as done versus work as imagined.

This research has taken a step to addressing this issue by highlighting that there is still a gap between what the standards and rules say and how perioperative nursing is practiced. This understanding is critical in determining how best to develop strategies to close the evident gap. These findings indicate that a genuine desire to do the right thing underpins adjusting, adapting and varying practices to make the system work and get the job done. As discussed earlier the intention is not to break the rules, the intention is to make things better for the patient, the team and the

organisation. 'Positive deviance' and 'local rationality' are terms used when deviating from rules with the intention of doing good.

Positive deviance and local rationality

In the memo above, I described the participants making decisions to deviate from rules and standards with good intention, that is to save time, to reduce time the patient spends anesthetized, to avoid delays and cancellations and keep the team happy. Deviance is traditionally defined as a negative attribute and behaviour that deviates is unacceptable. Gary (2013, p. 27) describes positive deviance as being both 'an oxymoron and a viable behaviour' in that it involves deviating from the rules in order to achieve a better outcome than the norm.

> *Positive deviance is intentional and honourable behaviour that departs or differs from an established norm; contains elements of innovation, creativity, adaptability or combination thereof; and involves risk for the person deviating (Gary 2013, p. 29).*

Shorrock et al. (2014, p. 10) uses the term 'local rationality' to describe how 'people do things that make sense to them given their goals, understanding of the situation and focus of attention at that time'. Responsible subversion is a term used to describe the behaviour of nurses who bend rules for the sake of the patient (Hutchinson 1990) and is therefore is a similar construct to positive deviance and local rationality. The next section will discuss findings from this research in the context of these concepts.

Gary (2013) identified two antecedents to positive deviance, the first being a sense of conflict between standards and hospital policies that limit the nurse's ability to provide the care required in different situations. Susan felt a sense of conflict when

discussing her observed practice of wrapping the gown tie in a glove wrapper to hand off to the scout to turn her gown.

> Researcher: Last thing probably today was in relation to when you were turning your gown.
> Susan: Yes (said with a wry smile)
>
> Researcher: How would you describe that in your own words?
> Susan: Cheating.

Susan used the term cheating to describe her practice. When I pressed her further on what she meant by this it was clear that she was not certain of the appropriateness of the technique despite being able to rationalise and justify her actions. The term 'cheating' was therefore an expression of the conflict she was feeling. The technique itself was quite innovative and performed with the honourable intention of ensuring her back was appropriately covered when setting up to minimise the risk of contamination.

The second antecedent identified by Gary (2103) is that a certain level of expertise is required that enables the nurse to recognise situational differences. For example, as Susan reflected, she chooses not to follow the standard on checking of trays for certain procedures because of her experience but she recognises that an inexperienced nurse may not know when it is appropriate or not to check a tray list so when working with an inexperienced team member Susan will always check the tray against the list so the inexperienced nurse can learn the rules. The role of experience is therefore central to making the decision to deviate from rules and standards.

Research by Traynor et al. (2010, p. 1588) found that whilst nurses acknowledged guidelines and protocols as 'instruments they had to adhere to and act in accordance with', they were also considered them to be 'too theoretical and of little

practical use' and introduced personal experience as a rational way of utilizing them in everyday practice. The concept coined by Traynor (2010) to describe this phenomenon is 'negotiating technicality'. The findings in my research are consistent with those of Traynor (2010) in that the participants emphasised their experience as being central to the way they worked. The next segment will explore this finding in more detail against the background of work by Dreyfus and Dreyfus (1980) and Benner (1984).

The role of experience in reshaping practice

Participants, in describing how and why they made certain decisions frequently used the terms experience, clinical judgment and common sense. The concept 'knowing how/not knowing how' expresses these categories. This concept encompasses the finding that 'knowing how' **or** 'not knowing how' can have a negative **or** positive influence on individual, team and organisational performance; can constrain **or** enable working in accordance with the rules and can increase **or** decrease the pressure felt by participants. The following memo describes my theorising on this finding:

> **Memo** (10 Jan 2016)**:** Whilst exploring and considering my codes and categories I was thinking about firstly what experience means to the participants and secondly the nature of the relationship between experience and decision-making. Experience in the context used by the participants is both related to time in the job and the level of skill and knowledge gained from that longevity. However, longevity alone does not necessarily confer the type of experience that the participants value in a team member. In describing what experience means to the participants they are also describing their expertise, which is the composite of the skills and knowledge gained from experience in the job. There also seems to be a link between a decision to either break or follow rules with experience.
>
> Susan is much more likely to break rules when working with an experienced team and to follow them when she is with an inexperienced staff member, an unfamiliar situation where she assesses the risk to be high. She adapts her behaviour to the situation and works in a way that does not follow recommended practice when she feels it is safe to do so. She

> applies clinical judgement to the situation as part of the decision-making process. Another aspect was the role that having people in the team has on the amount of pressure that the participants felt and its contribution to 'having a good day'. The concepts of decision making, experience, expertise and clinical judgment therefore appear to be inextricably linked.

This theorising led me to visit the literature on experience and expertise to inform and situate my findings in relation to the extant literature and theories on this topic. The work of Benner (1984) and Dreyfus and Dreyfus (1980) was the starting point for exploring the finding that the experience the participants spoke of i.e. 'knowing how/not knowing how' was a significant factor in the amount of pressure they felt and its influence on constraining or enabling working in accordance with the rules.

The participants identified that 'experience' in their eyes was not related to how long someone had been a perioperative nurse, rather it is the specific type of experience and non-technical skills that each member brings to the team. Dreyfus and Dreyfus (1980) speak of two forms of knowing; 'knowing that' which is guided by rules and 'knowing how' which is experienced based. The 'knowing' that the participants speak of is 'knowing how'. 'Knowing how' reflects the constant interaction between knowledge, skills and experience. The combination of past and new experience becomes 'skilled know how', one of the six aspects of intuitive judgment developed by Dreyfus and Dreyfus (1980) - the others being pattern recognition, similarity recognition, sense of salience, deliberate rationality and common sense.

Experience is however more than just knowing more or gaining skills, it is also about perceiving the world and approaching problem solving in a different way and developing new mental models (Hunt 2008). The experience of which the participants speak is expertise; the special skills and knowledge developed because of experience. It is the expertise that is highly valued as with it comes a level of

knowledge and skills that enhance the work of the team, instils confidence and trust within the whole team, reduces pressure and facilitates the delivery of safe patient care.

Whilst some disagree with Benner's developmental competence model (Rischel, Larsen & Jackson 2008) or are critical of the lack of definition (Lyneham, Parkinson & Denholm 2008) many authors continue to explore the concept of expert practice from a range of nursing perspectives including surgical and intensive care nursing (King & Clark 2002) district nursing (Burke 2014) and emergency nursing (Lyneham, Parkinson & Denholm 2008). Whilst application of this model in the perioperative setting has not yet been researched, my research has extended our understanding of the role that experience plays in influencing decisions to practice in ways other than following the rules.

The finding that non-technical skills can enable or constrain working in accordance with the rules will now be discussed.

Having non - technical skills

Non-technical skills are composed of a range of attributes that include communication, situation awareness, decision-making skills, teamwork, leaderships and culture (Flin 2014; Yule et al. 2006). These skills have been the focus of attention in training programs for crews in a range of industries such as aviation, nuclear power and oil drilling but there has been little emphasis in surgery (Yule et al. 2006) and in nursing. In perioperative nursing, the development of these skills has very much been left to chance and the relationship between non-technical skills and patient safety remains largely unexplored. Whilst there is little research on the influence of expertise on task performance, Koh et al. (2014) found non-technical

nursing skills to be advantageous in a scrub nurse. Experienced scrub nurses did better in assessments of non-technical skills than novice practitioners. This supporting their argument that some of the expertise related differences could be associated with superior non-technical skills (Koh, Park & Wickens 2014). Where these skills are lacking or absent patient outcomes can be impacted with a reported number of errors arising from instances where there was an observed deficit in non-technical skills (Yule et al. 2006). What is emerging from the data in this research is the importance of the perioperative nurse having well-developed non-technical skills in terms of the 'value' the nurse brings to the team.

Mindfulness is a similar concept to situational awareness being defined as 'a set of cognitive processes that allows individuals to be highly attuned to the many ways things can go wrong in unkind environments and ways to recover from them' (Henriksen et al. 2008, p. I 81). Being mindful is seen as an important characteristic in high reliability organisations (Henriksen et al. 2008) as it increases awareness of safety (Emanuel et al. 2005). Sarah relating how she is always looking around to make sure everything is ok and observing the patient within that context describes mindfulness in action. As Sarah states 'it all comes back to the patient'.

The findings demonstrate the need to manage multiple tasks in sequence, concurrently or holding information for future action. A term given to the process of holding and storing information is cognitive stacking (Potter et al. 2005) and this presents challenges for the perioperative nurse in remembering activities and priorities, particularly as tasks accumulate. Research by Potter et al. (2005) found that RNs stack a large number of tasks and that cognitive shifts occur frequently throughout a shift. The high number of stacked tasks achieved by the RNs she observed in her study was of concern because it could affect the nurse's ability to maintain information in a quickly retrievable way and attend to priorities. This may

lead to errors or omissions, particularly when further complicated by a high frequency of cognitive shifts and interruptions (Potter et al. 2005). This research supports findings from other studies that interruptions and distractions affect workload and task prioritisation.

Resources such as staffing, availability of equipment and supplies and information can affect the ability of the perioperative to practice in accordance with the rules. Constraints on resources can increase mental load, task load, time pressures and fatigue and as such are threats to situational awareness (Fore and Sculli 2013). System factors impact on the individual and team performance, which can then affect patient outcomes.

Whilst there is a dearth of research on experience and expertise in the perioperative field research in other areas provides insight into how this might impact in the perioperative setting. For example: research in expertise in ICU (Hill, W 2010); ICU and surgical wards (King & Clark 2002); palliative care (Bergdahl, Wikstrom & Andershed 2007); district nursing (Burke 2014); and the relationship between experience and performance of perioperative nurses (Koh, Park & Wickens 2014). This research findings indicate that participants make deliberate and rational decisions based on their skills, knowledge and experience and these findings are grounded in the data. Scholes et al. (2006) argue that clinical experts have to act as 'mavericks' to bring about change and they need courage and fortitude to succeed in this this. The notion of being a maverick is similar to being a positive deviant. This has extended our understanding of the role that experience plays in making decisions to work in ways that are not in accordance with the rules.

Whilst there is a need to be wary about intuition, in that experts can be fallible and intuition can be wrong, there is also a need to ' habitually narrate what we do, to others and question their understanding of the experience' (Scholes, Albarran &

Williams 2006, p. 9). Sharing this with other staff not only helps in the development of clinical decision making skills, it also makes transparent what is being done and why. This is particularly important where rules are being broken so that junior staff do not blindly follow their role models and to promote professional conversations about deviations from standards.

The preceding section has discussed the role of decision-making and experience in the **process** of reshaping practice. The reshaping of practice is a human act and to fully understand the implications the next section will discuss this in the broader context of human factors.

Human factors

The findings from this research indicate that perioperative nurses at times work in ways contrary to rules and standards. The choices we make to behave/act/practice in a certain way can have positive or negative consequences and at times, the consequences are unintended. In healthcare, an unintended consequence may be that a patient suffers an adverse event and this is obviously a negative outcome. Conversely, a positive consequence could be that a new, more efficient and just as safe way of doing something is developed. There are opportunities for innovation on the one hand and potential for patient harm on the other and this creates the paradox of how to make perioperative patient care safer and innovate to progress the profession.

The organisation or health care system also has a role in adverse events in that it can create the latent factors which may lie dormant for a long time and when combined with active failures can lead to an adverse event occurring (Reason 2004). I have discussed organisational conditions previously. What has arisen from this research is a connection between some organisational conditions and feelings of pressure experienced by participants to get the job done. This connection is the point where the individual intersects with the organisation. The discipline that studies the relationship between humans and the systems in which individuals work and interact is Human Factors and this provides a useful framework for interpreting and discussing the findings from my research.

The Human Factors discipline has a lot to offer in terms of understanding the interactions between and among humans and other elements of a system and offers useful insights into developing ways to optimise human behaviour and the performance of the system within which we work. In practicing perioperative nursing and delivering patient care, perioperative nurses are continually interacting

with the patient; the team; technology; equipment; information systems; other departments and the environment. These are the organisational conditions that influence the ways that perioperative nurses work and as my research and studies by others have shown, this can enable or constrain working in accordance with the rules. Human Factors research assists interpreting the findings from this research and to better understand the nature, implications and consequences of the interactions between the participants and the system that take place in the perioperative setting.

Systems change and evolve over time. Perioperative nurses, along with other health professionals adapt and modify their behaviour in response to these changes. Challenges exist in maintaining patient safety in the complex, adaptive environment that characterizes the perioperative setting. Carthey (2013) argues that the 'positive and negative effects of system evolution need to be anticipated and understood to manage safety effectively'. This presents opportunities for research into how ways of working other than following the rules contributes to the enhancement or erosion patient safety in the perioperative setting.

The next section will situate my findings within the broader Human Factors literature focussing on the concepts of rule violations; normalizing of deviance; and intentionality and to position the theoretical understandings emerging from this research in relation to existing literature and theories.

Rule violations

Rules and standards play a key role regulating and controlling the work of perioperative nurses, prescribing what and how work should be done (Reason 1997). There are also internal controls that represent the knowledge, skills and experience of the individual and together these controls limit the use of discretion

and the variability of human behaviour thereby ensuring safer ways of working (Reason 1997). The findings indicate that the internal controls of the perioperative nurse can take precedence over the external controls when 'being pressured' and 'feeling pressured'. This can then lead to working in ways other than following the rules.

The definition of reshaping practice provided in the previous chapter is 'to perform an existing practice differently to the established norm, standard or rule'. In deviating from the established norm, standard, or rule, the participants are in essence breaking the rules. These findings align with the results from a number of studies that show that nurses adopt ways other than following the rules to get the job done (Debono et al. 2013; Halbesleben et al. 2008). Rule breaking, taking shortcuts, cutting corners, rule bending and workarounds are examples of ways of working that do not strictly follow a rule or a prescribed set of steps. Reason (2005a, p. 82) uses the term violation - ' a deviation from safe operating practices, procedures, standards or rules', to encompass all these terms. Given that evidence based standards and protocols (rules) are safety tools to guide practice and deliver safe care, these alternative ways of working are examples of where a safety system can be breached, leading to the potential for patient harm and migration of practice to the boundaries of safety (Amalberti et al. 2006). Ways of working that deviate from procedures, standards or rules, may potentially increase the risk of harm to the patient (Collins 2012; Debono et al. 2013; Halbesleben et al. 2008).

Reason (1997) argues that where rules, policies and procedures are unavailable or deemed to be unworkable for the situation at hand, ways of working other than following the rules can be perceived as necessary to get the job done. These 'necessary violations' are the responsibility of the system rather than the individual. Under these circumstances such actions can be viewed as system violations where

the individual knowingly violates procedures because procedures are not available, unworkable or incorrect and these constitute up to 90% of all violations (Reason 1997). Necessary or system violations can also occur when the rule is not clear (Gurses et al. 2008) highlighting the relationship between ambiguity and rule breaking.

There are several examples of necessary or system violations observed in this research. Due to the speed of the surgeon and only having one nurse scouting Claire cannot physically complete all the tasks required at the time they should be completed and this puts her under pressure. She prioritises keeping the surgeon happy and the list moving along over the paper work even though she is cognisant she is not following the rules around accurate and timely documentation and that there may be inaccuracies, for example where the diathermy pad was placed, how much local was injected and the count.

The failure of the organisation to provide adequate resources to meet the standards puts the participant in the position of having to trade off one priority over another. If an item is not recorded this has potential consequences for patient safety because there is no way of knowing whether it has been inadvertently retained. The vignette from Riskwatch (Victorian Government 2014) presented earlier in this chapter demonstrates the consequences to patient safety of items being used during a procedure but not being recorded.

I documented my reflections on time availability or limitation in the following memo:

> **Memo** (3 Nov 2015)**:** The issue of 'time' came up frequently during interviews and this led me to look for some articles around the concept of time. This reading made me realise how much I thought of time as clock time and how little I had considered its subjective nature. I had no understanding of the concept of temporality and the work of Orlikowski (2002) enlightened me about temporal structures and how the work of a team within an organisation is influenced by shared temporal structures. This then got me thinking about what time means in a perioperative setting where clock time is the dominant paradigm, what and how temporal structures are shared and the impact of perceived time pressure and whether this influenced behaviour (rule breaking). Then an article by Hendry (2004) on how nurses ration time when allocated time is not sufficient to deliver the care required, led me thinking to how perioperative nurses prioritise. It is evident that time or the perceived lack of time is important to perioperative nurses as this is alluded to frequently in the context of getting the job done.

During this research, I observed that several rules and standards were regularly breached. For example, trays were not always checked with the scout nurse; items were removed before the final count; inappropriate jewellery was worn; stickers were placed on arms and on uniforms rather than on the form; the count wasn't restarted following an interruption; packs were not counted for burns cases. The regular breaching of the rules that underpin practices such as the count, theatre attire and tracking procedures points to the 'reshaped' practices becoming the norm. I will now position this finding within research on normalizing of deviance (discussed in Chapter 2) emphasising the implications this may have for patient safety and practice.

The 'reshaped' practices point to evidence of borderline tolerated conditions of use (BCTU's) being present indicative of the system being in phase 2 of migration (Amalberti et al. 2006). Rule breaking has already become so routine and common

that it is invisible. In this phase 'migration toward the boundaries of safe operations develops through a combination of organisational demands for greater performance and the pressure that this generates, combined with the perceived advantages for individuals in getting things done' (Reid 2014, p. 4). As previously described the participants at times deviated from the rules to improve performance of the system and viewed this as beneficial and honourable. On several occasions participants were unaware their practices breached the rules until this was raised into their consciousness through interview.

There is an irony present that many violations support service efficiencies and productivity in the short term and staff can be praised for flexibility and getting the job done (Amalberti et al. 2006; Reid 2014; Vats, Nagpal & Moorthy 2009). The problem is that perioperative nurses may become blinded to the potential consequences and risks inherent in such behaviours. Because they help us get things done, rule breaking becomes increasingly appealing. However where rule breaking becomes the norm coupled with a lack of regard or understanding of the potential consequences of normalizing deviant acts, the organisation begins to drift towards the boundaries of safety where further rule breaking may breach safety systems and lead to patient harm (Reid 2014).

Intentionality

The concept of intentionality has its philosophical roots in the work of Franz Bertano and Edmund Hurserl. Hurserl cited in McIntyre and Smith (1989 p. 147) considers intentionality to be the 'fundamental property of consciousness' and 'a characteristic feature of our mental state and experiences, especially evident in what we commonly call being 'conscious' or 'aware' '. Intentionality directs an action towards something; that is an action is intentional when it is performed with a certain intention (McIntyre & Smith 1989). Understanding intentionality assists in

understanding the degree of individual responsibility for actions and Reason (2000a) has built on these ideas in his work on violations. Reason (2005) differentiates between erroneous (unintentional) or deliberate (intentional) actions. For example, if you unknowingly park your car in a restricted zone, this is an erroneous violation. You may not have intended to deliberately break council by-laws, but you have still deviated from the rules. Reason (Reason 1997) proposes a model of diminishing culpability based on the relationship between the 3 elements of human acts, actions, intention and consequence. The key aspects of this model are summarized as follows:

1. Where actions are unintended such as slips and lapses (errors), the level of culpability is low.
2. Where actions are intended but the possible bad consequences are not, covers mistakes and violations.
3. Where actions and the consequences are intended, this is likely to be deemed criminal behavior (Reason 1997).

Instances of taking shortcuts, cutting corners, bending and breaking the rules and workarounds were observed during my research and these were justified by the participants because they saved time, avoided delays, kept the doctors and team happy and met organisational needs. In acknowledging and articulating the reasons for rule breaking the participants are also acknowledging an intention to practice in a certain way but they do not necessarily perceive this to be rule breaking as described by Susan in the following exemplar:

> Susan: Well I wouldn't consciously think I'm breaking the rules. I know I am not following the recommended procedure but I guess I use my experience to judge in what instance I would do that.

Whilst the actions being taken are deliberate, for example not checking the tray contents with the scout nurse against the tray list, there is not necessarily an awareness or consciousness of this being rule breaking behaviour as described by Susan above. From a philosophical perspective then intentionality is not present, because whilst the action is intentional the action is not performed with the intention to break the rules. The action is performed for another purpose, which is to prevent delays or cancellations, keep the team happy or meet organisational needs. Busby and Izzat-White (2016 p.49) argue that one of the issues with rule breaking behaviour is that it has commonly been judged in the third person i.e. through the eyes of the organisation, rather than 'exploring the judgments of the people who have to explain rule violation within the system in which it is taking place'. This is in line with the work of Shorrock (2014, p. 10) who argues strongly that 'work needs to be understood from the local perspectives of those doing the work'.

The intention behind the rule breaking observed in my research is more about doing the right thing by the patient, team or organisation rather than an intention to break the rules. This finding aligns with those of a study of environmental and personal drivers for rule bending within the context of defending nurses whose license may be suspended due to their actions, which found that nurses sometimes bend the rules with good intentions (Collins 2012).

The implications of the findings for patient safety and nursing practice will be discussed the following sections.

Implications for patient safety

The research question asked what 'What are the ways of working and the implications for patient safety and nursing practice?' In previous sections the ways that the participants worked were explored with the finding that in certain circumstances, the participants worked in ways other than following the rules. The most significant potential outcome for a patient from perioperative nurses deviating from standards and rules is unnecessary harm. The next exemplars describe three adverse events/ near misses the participants were aware of or involved in and they are presented here to paint a picture of the possible consequences that can arise where rules and standards are not followed i.e. incorrect diagnosis, retention of pack and incorrect site surgery:

> Susan: The example of the specimen that was put in the same jar as somebody else's specimen. That's happened on several occasions, so that's why we're supposed to check the label for patient name and the name of the specimen before you put it in the pot.
>
> Joanne: They did a count and one pack had fallen on the floor. And then they did the closing count and meanwhile the surgeon had taken a pack and used it as a dish and somebody had picked the fallen pack up and put it somewhere. And when they did the final count they counted one pack twice. So, there was a pack left and so because of that, we changed what we did as our practice to say that all items must be visualised for the final count.
>
> Claire: We have had a couple of incidents where pretty serious things have happened and they have then even modified the time-out. There were several lesions being removed and the wrong lesion was taken off someone and there was a wrong toe was taken off because there were multiple toes being removed and the wrong toe was removed.

Whilst these exemplars describe the nature of the adverse events what is **less** evident are the factors that influenced standard practices not being followed and it is these factors that my research has explored. In the next exemplar, the adverse event described can be directly linked to organisational conditions that created an

environment vulnerable to rule breaking. Here the participant knows the risks associated with positioning bariatric patients for laparoscopic surgery and the strategies that would minimise this risk i.e. application of thigh straps. However, the organisational conditions of inadequate staffing and 'being busy' created pressure that led her to overlook checking that straps were placed over the legs to prevent the patient slipping down the table and into the anaesthetist's lap:

> Susan - One area of patient safety that has been a recent issue is the use of yellow fins with bariatric patients. We've had a few near misses where the patient has been put into stirrups and then when we've tipped the bed intra-operatively they've slid down. I was involved in one recently and luckily there was no injury to the patient. I strained my back for the day catching the patient in a hurry. Looking back to that day and I remember thinking about it, we were short staffed that day and busy running around in the morning, did all the usual positioning I did but wasn't thinking bariatric straps and ironically all through the case the surgeon was saying I hope the patient doesn't slide off as we've had this happen before and sure as eggs.

In theorising about the influence of organisational conditions on ways of working and through further reading of the literature, I became aware of a framework developed by Charles Vincent (2012) that helps make sense of and situate these findings.

Seven Levels of Safety framework

Vincent (2012), drawing on the work of Reason (1997) and adapting it to the health care setting, identified several contributory factors that can ultimately result in an adverse event by creating an environment vulnerable to unsafe acts, violations and errors. The 'Seven Levels of Safety' framework (Vincent 2012) describes these factors under the headings of task factors, individual factors, team factors, work environment, organisational conditions, institutional context and patient factors.

For the purposes of comparison and discussion the factors evident from this research will be discussed under each of these headings.

Task factors

Vincent (2012 p. 25) notes that 'the design of the task, the availability and utility of protocols and test results may influence the care process and affect the quality of care'. This research found that ambiguity or clarity of a task, rule, standard also influenced the care process by acting to enable or constrain practicing in accordance with the rules. Examples of ambiguity were found in Team Time Out procedures and practices related to storage of sterile solutions in warming cabinets leading to inconsistencies in practices within the team and between theatres and specialities.

Individual factors

Vincent (2012 p.25) argues that individual staff factors including 'the knowledge, skills and experience of each member of staff… will obviously affect their clinical practice'. The findings from my research support this assertion and found that experience, personal choice and non-technical skills influenced decisions to work in ways other than following the rules. Emerging as a key finding from this research and thus extending our knowledge in this area is that the phenomena of being pressured and feeling pressured also influences decisions to work in ways other than following the rules.

Team factors

Vincent (2012 p.25) purports that 'each staff member is part of a team within the inpatient or community unit. The way an individual nurse practices and their impact on the patient, is influenced by other members of the team and the way they communicate and support each other'. This research found that team dynamics and team make-up can enhance or detract from individual or team performance and

highlighted the influence of group norms on behaviour and the importance of having shared goals.

Working conditions

Vincent (2012 p.25) described these conditions as including 'the physical environment, availability of equipment and supplies and the light, heat, interruptions and distractions that staff endure'. In this research, interruptions and distractions and the availability/accessibility of equipment and supplies were found to constrain working in accordance with the rules. Furthermore 'being busy' and limitations on time were also found to influence decisions to work in ways other than following the rules.

Organisational factors

Vincent (2012 p.25) states that 'the team is influenced in turn by management actions and by decisions made at a higher level in the organisation. These include policies for the use of locum or agency staff, continuing education, training and supervision and the availability of equipment and supplies'. Availability of equipment and supplies was also constraining factor for the participants in my research along with the expectation that already busy perioperative nurses supervise junior staff. Other organisational conditions highlighted in my research were the role that communication plays in minimising risk to patients and the impact of workload and expectations of team members on the participant's performance.

Institutional context

Vincent (2012 p.25) proposes that 'the organisation itself is affected by the institutional context, including financial constraints, external regulatory bodies and the broader economic and political climate'. Whilst these factors were not specifically canvassed in my research, my research did find instances where team

members were required to comply with rules and standards imposed by external regulatory bodies, for example the WHO Surgical Safety Checklist but compliance was problematic due to ambiguity of the procedures.

Patient factors

Vincent (2012 p.25) states that 'the patient's condition has the most direct influence on practice and outcome' and 'other factors such as personality, language and psychological problems may also be important as they can influence communication with staff'. Even where there are no obvious problems patients can play a role in the error trajectory as highlighted by Claire in describing a situation where the 'wrong' Beverley stood up when called by the surgeon for a pre-operative assessment. The surgeon went to the Day Unit and called for Beverley (surname) and a lady stood up in response and followed the doctor into a consult room. As that lady was leaving the room a nurse came up to her asking if she was Beverley (different surname) to which she responded yes. When she had heard the doctor call Beverley she had automatically stood up having not registered that the surname was not hers. She was having a breast procedure and despite the doctor looking at her hand and telling her about hand surgery she still did not say anything. The doctor was not aware he was examining the wrong patient until the nurse told him it was the wrong patient. This incident highlights how trusting patients are that doctors and nurses know what they are doing and must be right and their reluctance to question even if things appear amiss. This incident demonstrates how easily poor communication and making assumptions can potentially contribute to adverse outcomes.

In summary, the 'Seven Levels of Safety' framework developed by Vincent (2012) provides a useful tool for assessing the factors that contribute to adverse events and the risks they pose to patient safety. Findings from this research have consolidated our knowledge on the factors contributing to adverse events and have also

extended our understanding of this topic in the context of perioperative nursing practice.

Implications for nursing practice

The findings emerging from this research indicate that what is practiced (work as done that does not necessarily follow the rules) is neither documented at the time it occurs nor discussed at unit, department or organisational level or in the professional arena. It was also found that the ability to improve the system is compromised by unrealistic expectations and limitations on the time of the individuals who are best placed to make them. Interpretation of these findings will now be discussed and positioned in relation to the literature, dialogues and theories and demonstrate where knowledge and understanding has been extended.

The implication of failing to recognise and respond to 'work as done' is threefold. Firstly, positive outcomes or learning's from deviance are lost; secondly existing inefficient, ineffective, unusable or unnecessary rules continue in place; and thirdly rules that should not be broken continue to be broken with the concomitant risks. Underpinning this is a reluctance to speak out on these issues, write about them and communicate them within the workplace and with professional bodies. 'If nurses are to learn from nursing practice they need to take the risk of writing about practice as it is and not as they believe it should be' (Street 1990, p. 2). Perioperative nurses need to speak out to expose and uncover the constraints within which they work, challenge assumptions and acknowledge the potential consequences of their actions. They are a rich source of tacit knowledge and it is beholden on the profession to capture this and use it to inform practice and standards. A rigorous and systematic examination of practices that do not follow established norms might identify creative and innovative practices. These practices, whilst breaching existing rules and standards, may in fact improve productivity and performance and at the

same time assure patient safety. This offers multiple opportunities for further research.

These findings indicate that in responding to pressures to get the job done, the participants prioritised their tasks in such a way that improvements to processes and reporting of incidents were often placed last and were at times not done. The ability to make improvements to processes, to reporting incidents and issues with equipment and IT is severely compromised by organisational conditions such as time availability, staffing and workload and pressure to get the job done.

The preceding discussion and interpretation of findings has highlighted the multifactorial nature of perioperative patient safety and nursing practice. To better understand patient safety it is crucial to consider it 'in the context of the overall system, not isolated individuals, parts, events and outcomes' (Shorrock et al. 2014, p. 4). Viewing patient safety as a system rather than part of a system or an outcome of the system changes the perspective on how to make surgery safer. Approaching safety in this way brings together the multifactorial aspects discussed in the previous chapter into a coherent whole. In so doing, it offers a way forward in terms of strategies to make the delivery of perioperative nursing care safer.

Systems thinking for safety

Systems thinking for safety facilitates the bringing together of the concepts emerging from this research, how they are connected and interrelated and in so doing builds upon the conceptual framework described at the beginning of this chapter. The ten principles for safer systems (Shorrock et al. 2014, p. 4) encourage and promote a systems thinking approach to organisational safety. Whilst these principles have been formulated primarily for the air safety industry, they are applicable for use in any system including health care. Based on the findings from

this research these principles are of particular relevance to the provision of safe perioperative nursing care and are outlined below along with examples from this research.

Principle 1. Involvement of Field Experts

Shorrock (2014) advises that the involvement of the people who are part of the system is fundamental to understanding the system. To understand how work is done, the people doing the work need to be partners in improving the system. Within the perioperative setting, perioperative nurses are the experts in perioperative nursing practice and their involvement in any changes to the system e.g. introduction of a new process, is vital to ensure success.

Principle 2. Local Rationality

Shorrock (2014, p. 10) argues that 'people do things that make sense to them given their goals, understanding of the situation and focus of attention at the time'. This is quite evident in this research findings where the participants made decisions based on the circumstances at the time for example, Claire flipping her sterile items into a bowl so she could go and scrub to be ready for the surgeon. The concept of local rationality accepts that there are multiple perspectives on any individual event and that making sense of system performance relies on seeing all these perspectives.

> *Exploring multiple and differential views on past events and current system issues brings different aspects of the system to light, including the demands, pressure, resources and that affect performance. We begin to see trade-offs, adjustments and adaptations through the eyes of those doing the work. This will help to reveal the aspects of the system that should be the focus of further investigation and learning (Shorrock et al. 2014, p. 10).*

Principle 3. Just Culture

This principle is underpinned by the assertion that when things go wrong there is a natural tendency to compare the performance of an individual against 'work as imagined' and to apportion blame despite the fact that people usually set out to do their best and achieve a good outcome (Shorrock et al. 2014). There was of evidence in my research of perioperative nurses feeling blamed for incidents that occurred for example when Joanne omitted to remove the IV from the previous case. To learn from near misses, errors and adverse events, an environment of openness, trust and fairness is an essential condition. Only then can conversations about how things work and why they work that way, be had.

Principle 4. Demand and Pressure

Shorrock (2014) proposes that people adjust and adapt in response to varying demands. Availability of resources, constraints or the design of the work can lead to pressure resulting in the individual having to make trade-offs to meet the demands of the job. There are multiple examples in this research of perioperative nurses adapting and adjusting their behaviours and making trade-offs to get the job done for example Susan deciding not to check tray lists for trays she is familiar with to save time and Claire not restarting the count following an interruption so as not to delay the surgeon. The feelings of pressure created by meeting demands were also observed in this research with 'being pressured' and 'feeling pressured' being uncovered as a constraint to working in accordance with rules and standards.

Principle 5. Resources and Constraints

This principle acknowledges system conditions that help or hinder work and highlights the impact of inadequate resources on system performance. Shorrock (2014) finds that whilst constraints keep variability within certain boundaries and are necessary for system stability, they can also supress flexibility. 'If constraints 'run

counter to the purpose and flow of the work, they become problematic and people work around them' (Shorrock et al. 2014, p. 16). An example of this from this research is the participants finding a way around placing the stickers on a form that is located on the other side of the theatre by placing the stickers on themselves first and transferring them across later.

Principle 6. Interactions and Flows

Here Shorrock (2014) discusses the nature, demand, flow and interactions that take place within a system. He argues that if aspects of the system are managed as individual entities, goals may be introduced that conflict with the goals of other entities. An example of this in this research is the conflict created by the organisation implementing a process to track sterile items (the goal being to track which items are used on which patients) without having tested how this process can be implemented in the messy reality of practice. The results being that perioperative nurses (whose goal is to open all the sterile items quickly to get the case under way) have developed a workaround. The Team Time Out procedure is an example of a need to cut across organisational boundaries, which hinders flow and creates conflicts within the system. Such conflict builds up pressure for perioperative nurses who must manage the competing goals. To avoid such conflicts occurring the work should be viewed from end to end throughout the system and involve the field experts in development of processes.

Principle 7. Trade-offs

This principle poses that work in complex systems does not always follow a routine path and the impact of demand, resources and constraints results in trade-offs having to be made (Shorrock et al. 2014). Trade-offs were evident in this research when for example Sarah made the decision to send instruments to CSD before the

count was completed (in breach of the standard) to ensure the items would be ready for the next patient thereby avoiding delays and cancellations.

Principle 8. Performance Variability

Shorrock (2014) asserts that the unpredictable nature of demand, resources and constraints results in variability in performance and individuals make continuous adjustments to adapt to system changes. In this research Susan acknowledged her performance varied depending on whether there was a student present and Joanne and Claire admitted they cut corners when the surgeon was very fast. 'People will find ways to fill gaps in the system, with various adjustments to balance various goals' (Shorrock et al. 2014, p. 22). Whilst variability is normal and necessary, it needs to be kept within acceptable limits to avoid drifting to the margins of safety and where unwanted variability is identified, Shorrock argues (2014) that it is the system that needs to be acted upon, not the individual.

Principle 9. Emergence

This principle identifies outcomes from complex systems as being emergent and as such they may not be the outcomes that were expected (Shorrock et al. 2014). This emergence arises from variability, adaptation and the interaction of different elements of the system. This principle recognises that 'small changes and variations in conditions can have disproportionally large effects' (Shorrock et al. 2014, p. 24). An example from this research was the infection risk posed to a patient when changes in conditions (having a student present and normal routine being interrupted) led to Joanne omitting to remove the used IV. This highlights the need to be cognisant of the effects of interactions and flows and to develop skills to anticipate emergent properties of the system within which we work.

Principle 10. Equivalence

In this final principle Shorrock (2014) highlights the tendency to look to the individual when something goes wrong and add another constraint and to pay little attention when things go right, as they do most of the time. The participants in this research observed that the organisation was quick to apportion blame when things went wrong. The focus of attention was on investigating incidents and near misses and changing practices to remedy the problem. For example, Claire reported that in response to a wrong site surgery where there were multiple toes to be removed but the wrong one was excised, the organisation sent out a directive to stop and do a TTO between each toe (or lesion, or tooth removal). As the Safety II approach (Hollnagel, Wears & Braithwaite 2015) demonstrates, success and failure come from the same source and it is therefore just as important to focus attention on what goes right. Strategies such as working on demand, providing better resources, adjusting interactions, improving flow, increasing flexibility and responsiveness by removing unnecessary constraints will act to improve the number of things that go right and hence improve patient safety (Shorrock et al. 2014).

In summary the 'Systems Thinking for Safety' principles developed by Shorrock (2014) offers a way of viewing perioperative nursing in the context of the system within which it is practiced. We need to consider the system as a whole rather than a collection of parts and recognise the importance of involving perioperative nurses as field experts in the design of and changes to the system. It presents an opportunity for further study on embedding these principles within the workplace.

Summary

This research has addressed the question of the ways that perioperative nurses work and the implications for patient safety and nursing practice. It has uncovered that at times perioperative nurses break the rules when they encounter barriers or challenges that compromise or limit their ability to get the job done. The data shows that decisions to work in ways other than following the rules are influenced by several factors including organisational conditions, ambiguity of rule, task and responsibility, team characteristics and individual characteristics. These factors craft the **context** within which perioperative nurses practice and create the **phenomena** of 'being pressured' and 'feeling pressured'. The participants respond to this pressure by engaging in a **process** of reshaping their behaviour. Together these concepts form the **substantive theory** that perioperative nurses *'reshape their practice in response to being pressured and feeling pressured to get the job done'.* Rule breaking or violations in perioperative nursing are not well understood and there has been little research on this topic. This research has contributed to, and extended our understanding of why perioperative nurses deviate from rules and standards. The phenomenon of being pressured and feeling pressured is another factor that impacts on knowingly deviating from rules and standards giving rise to the basic social process of reshaping practice in response to pressure.

Chapter 7: Conclusions and recommendations

This thesis presents the substantive constructivist grounded theory that perioperative nurses reshape their practice in response to pressures to get the job done. The research provides insight into the ways that perioperative nurses work as they deliver care in a complex and challenging environment where there are competing demands on their time. The substantive theory generated from this study is a co-construction of the respective experiences and realities of the participants and of the researcher who brings an emic perspective to the research.

This final chapter will present the key findings from this study, their relevance to the research question and propose recommendations that address the key findings and offer ways to enhance perioperative patient safety. The contribution this research has made to the discipline of perioperative nursing and opportunities for further research and enquiry will also be expounded. The research will be evaluated against several criteria posed by Charmaz (2014)

The Research question

The aim of this research was to explore the ways that perioperative nurses work in a complex and demanding environment where there are competing pressures to get the job done and this aim has been achieved. The primary research question was 'what are the ways of working in perioperative nursing and the implications for patient safety and nursing practice? The following questions supplemented the primary question:

- What are the different ways of working in perioperative nursing?
- What are the conditions that underlie the different ways of working?
- What influences the nurse engaging in different ways of working?

- Are perioperative nurses mindful of working in different ways?
- What are the implications for practice and patient?

The answers to these questions have emerged from and are grounded in the data. The key findings from this research have been detailed and discussed in the preceding chapters and are briefly summarised as follows.

Key findings

The **context** within which perioperative nurses practice was found to enable or constrain practicing in accordance with standards and rules. These enablers and constraints may act to enhance performance and compliance or conversely create pressure and an environment vulnerable to perioperative nurses making trade-offs between rule following or rule breaking to get the job done. The enablers or constraints to practicing in accordance with the rules were categorised under headings of organisational conditions; ambiguity/clarity of rules, standards and tasks; team characteristics and individual characteristics.

Organisational conditions that enabled or constrained working in accordance with the rules were found to be 'being busy'; 'needing more time'; 'being interrupted and distracted'; and 'having a good team'. Team characteristics were 'having a good day'; teamwork and dynamics; and 'having shared goals'. Individual characteristics were found to be 'making decisions'; 'knowing how'; gaps in knowledge; 'making a personal choice' and 'having non-technical skills'.

The **phenomena** of 'feeling pressured' and 'being pressured' to get the job done emerged from the data. This research found that in meeting the demands of the job, the participants experienced feelings of pressure arising from the organisational

conditions they faced such as workload; availability of equipment and supplies; supervision of students, the perceived lack of time to complete all necessary tasks and their own desire to do the job well. Other pressure came from sources external to the participants, these being the doctors, other team members, skill mix and issues with equipment and supplies. This external pressure created or added to the pressure being felt from within. Of significance is that 'being pressured' and/or 'feeling pressured' may increase vulnerability to finding ways of working that overcome perceived barriers and save time.

The final finding was that in responding to the pressures to get the job done the participants engaged in a **process** of 'reshaping practice', highlighting what perioperative nurses actually do when they encounter barriers or pressures that compromise or limit their ability to get the job done. The findings indicate that perioperative nurses respond to pressure to get the job done by working in several different ways. Ways of working were found to be: complying with the rules; toeing the line; making errors; and breaking the rules. Whilst on most occasions participants practiced in accordance with rules and standards, there were several instances where they practiced in ways other than following the rules. The phenomena of 'feeling pressured' and 'being pressured' were present during many instances of rule breaking.

The study uncovers the role that being pressured and feeling pressured plays in the participant's decisions to reshape practice and work in ways other than following the rules. These phenomena have not been explored in other studies and as such this finding adds to our body of knowledge on the factors that impact on rule breaking.

Evaluation of the study

Evaluation of a study affords the opportunity to reflect on the research journey, consider what the study offers to the audience and facilitate clarification of both the research processes and findings. Evaluating the research against a pre-determined set of criteria ensures that the expectations for a grounded theory study are met. For this constructivist grounded theory study, the criteria of credibility, originality, resonance and usefulness proposed by Charmaz (2014) will be utilised.

Credibility

This study was designed using a constructivist grounded theory approach that recognises the intimate and reciprocal nature of the relationship between the researcher and the participants. Issues of power imbalance and the professional self and their potential impact on the relationship between the researcher and the participants were considered prior to entering the field. The writing of memos engaged the researcher in critical reflexivity that in turn raised self-awareness of the place of the researcher in the research process. The rigorous attention to the research design in terms of number of participants recruited and time spent in observing and in-depth interviewing lends weight to the credibility of the findings. The detailed field notes taken during observation coupled with the recording and transcribing of interviews ensured the sufficiency of data to support the claims being made and to enable the reader to form an independent assessment of the findings.

Systematic comparisons were made between codes and codes, codes and categories, categories and categories and significant categories were then elevated into the concepts that underpin the nascent substantive theory. This process is clearly articulated and documented within this thesis. The theory generated is culmination of the emergent concepts and the links and connections within and

between them. The theory portrays the logical links between the gathered data and the analysis and arguments that ensued. The exemplars provided throughout the thesis provide abundant evidence to the reader to support the analysis, synthesis and interpretation of the findings. My experience as a perioperative nurse enhances the credibility of the study in that it enabled me to quickly become embedded in the setting; to observe and understand practices from a position of having relevant knowledge and skills; to accurately record observations and write about professional standards; to engage in discussion with participants about practices; and to accurately interpretation the views of the participants.

Originality

The codes developed were derived from the data and in-vivo codes used wherever possible as these represented telling statements made by the participants using their everyday language. For example, the codes 'push, push, push' and 'working with haste' that were later elevated to categories offered new insights to the experiences of the participants as they went about their daily activities, in particular the feelings of pressure to get the job done. The rendering of the data led to new insights about factors that enabled or constrained working in accordance with the rules and the connection between 'being pressured' and 'feeling pressured' and reshaping practice i.e. deviating from rules and standards. This work supports and extends research on contributory factors to adverse events. It aligns with work by others on rule breaking, normalising of deviance, systems ambiguity and safer systems and extends this understanding further into the field of perioperative nursing practice.

Resonance

The developed categories and concepts (illustrated in diagram 1 in the previous chapter) portray the data in a meaningful way that is evocative of the lived experience of the participants. The names of the categories and concepts make sense of the data and render it in a way that facilitates the articulation of the substantive theory. The substantive theory is therefore grounded in the data.

Throughout interviewing the participants shared their experiences and through a reciprocal process could make sense of practices that they had not necessarily considered previously. Many taken-for-granted aspects of their work were thus raised into their consciousness and this process engaged them in critical reflexivity and helped them make sense of their world. This increasing self-awareness of the participants has been incorporated into this thesis. Some of my writings were shared with the participants to seek clarification from them of observations made and responses they had given at previous interviews. This process of theoretical sampling helped to refine categories and make sense of the data and offer them deeper insights into their world. For example, when discussing with the participants those practices that did not comply with the standards, they became aware of a hitherto unknown conflict between what they were doing versus what the standards prescribed. The normalising of practices that were not in accordance with rules and standards render non-compliant practices invisible and it was the conversation between us at interview that uncovered this dissonance and led to new understanding of their practice.

Usefulness

The analysis of the data is presented in a form that renders the findings meaningful, readable and accessible. This thesis brings together the findings into a coherent and logical whole and can be utilised by perioperative nurses, managers, organisations and professional bodies to make sense of the world of perioperative nursing, provide insight into the factors that fall within their respective spheres of control and to inform decisions at all levels on how to make surgery safer. The research was conducted at a public and a private hospital in Tasmania and the findings articulated in this thesis are equally attributable to both settings. It is highly likely that similar findings would be generated at other hospitals in other states of Australia and therefore the substantive theory has general applicability.

The analysis has also raised areas that offer opportunity for further research into addressing systems ambiguity and better aligning work as imagined with work as done. Exploring strategies that enhance coping strategies and resilience of perioperative nurses would also be of benefit to the profession. This research has been situated within the extant literature on patient safety and rule breaking and contributes to and extends our understanding of this topic. The benefits of this research are threefold. Firstly, it shines a light on the lived experiences of perioperative nurses and makes visible the difficulties and challenges they face in delivering safe care in the messy reality of practice. Secondly it offers a practical, principle-based approach to addressing patient safety through a whole of system approach. Thirdly recommendations if implemented will contribute to enhancing system and patient safety thereby minimising the risk of patient harm.

Limitations of the study

All research approaches have limitations and it is important to choose the right methodology and research design for the research questions posed. Qualitative research is concerned with how social experience is created and given meaning (Charmaz 2014) and the constructivist grounded theory approach used in this research brought to life the experiences of the perioperative nurse participants and laid bare the messy reality of their practice world. Ultimately the credibility of the research lies in the sufficiency and richness of the data and its conceptual rendering by the researcher into a substantive theory that is representative of the world of the participants.

Qualitative research is by its very nature, subjective and relies on the researcher who conducts it to interpret and represent the experiences of the participants. Readers may perceive this as a being a limitation. A constructivist grounded theory approach acknowledges that the researcher is 'not neutral' and is 'not just an observer' but is a participant in the research bringing his/her own knowledge, experiences, values and assumptions to the research (Denzin & Lincoln 2005, p. 27). The obligation is on the researcher to 'be reflexive about what we bring to the scene, what we see and how we see it' (Charmaz 2014) and by engaging in critical reflexivity and through the processes of memo writing and theoretical sampling the researcher makes transparent how the codes, categories and concepts and ultimately the substantive theory are arrived at.

The findings from this research emerged from observing and interviewing six participant perioperative nurses in one public and one private hospital in Tasmania. The small number of participants may be considered a limitation but this is in keeping with other qualitative studies that seek to explore the lived experience of participants. Notwithstanding the small number of participants, the findings were

common to both sites indicating that perioperative nurses working in both the public and private sector faced similar challenges and competing demands and responded in similar ways. Whilst the findings are not necessarily applicable to perioperative nurses working in different facilities across Australia or in other parts of the world, it is highly likely that some if not all the findings will resonate with many perioperative nurses.

A further limitation is the potential for bias and issues of power from the background of the researcher and many of the participants knowing or knowing of the researcher. I acknowledged issues relating to power and the professional self on commencement of the study with the process of memo writing and engaging in critical reflexivity built into the research design to address these concerns.

Recommendations

This research has identified a range of factors that constrain or enable working in accordance with rules and standards. These factors can lead to the phenomenon of 'being pressured' and 'feeling pressured' and this pressure in turn becomes a constraining factor. No single strategy will offer a resolution to the pressure felt by perioperative nurses whereas a multipronged approach is more likely to be effective. It is paramount that any approach to addressing the findings from this research includes the employing organisation, the profession, the nursing education sector and individual perioperative nurses. The recommendations that follow reflect the need to implement strategies across several areas.

The organisation

1. Adopt the Safety II approach of thinking about how work is actually done and how to ensure things go right, to shift the organisation's focus to effectively achieving the goal of delivering safe care rather than on ways to avoid the anti-goal of avoiding incidents.
2. Harness the knowledge and experience of perioperative nurses and engage them in discussions about 'work as done', exploring multiple and different views on safety events and current system issues to better understand the demands, pressure, resources and constraints that affect performance. This will highlight the trade-offs, adjustments and adaptations through the eyes of those doing the work and reveal the aspects of the system that should be the focus of further investigation and learning.
3. Discuss openly with clinicians about ways of working other than following the rules to bring violations to the fore leading to improvement in safety systems. Engaging staff in dialogue about practices vulnerable to workarounds could also prove fruitful.
4. Clearly communicate those violations that will not be tolerated and manage individual performance appropriately where ongoing violations may potentially lead to patient harm.
5. Recognise the value of teamwork in patient safety and work to establish teams based on skill mix and familiarity of team members with each other, the surgeon and the speciality.
6. Reduce the volume and complexity of rules that health care professionals are expected to follow and embrace strategies such as adopting the standards, guidelines and protocols promulgated by professional bodies only publishing local policies where there are variations. In addition, limiting length, improving readability and removing out of date, irrelevant or trivial policies will also prove beneficial.

7. Focus on key standards that have biggest impact on safety and ensure 100% compliance with these.
8. Ensure an accessible, simple, easy to use system for reporting problems, underpinned by a culture that promotes problem sharing and solving rather than finger pointing and blame to more effectively manage violations.

The profession

1. Develop strategies to engage perioperative nurses to use the standards as the benchmark for best and safest practice.
2. Establish forums for perioperative nurses to provide feedback and discussion on 'work as done' and use these to inform development and amendment of standards.
3. Move towards principle based rather prescriptive standards to facilitate the use of a range of techniques that may achieve the same outcome.

The nursing education sector

1. Adopt a non-technical skills framework such as the Scrub Practitioners List of Intraoperative Non-Technical Skills (SPLINTS), to enhance the development non-technical skills in post-graduate perioperative nursing programs.
2. Enhance the resiliency of nurses to better manage the pressure inherent in the clinical setting.

The individual perioperative nurse

1. Articulate the knowledge embedded in the practice of perioperative nursing to bring to life everyday practices and offer them up for scrutiny and testing to ensure they are safe.
2. Communicate with the organisation and professional body those circumstances and situations where standards and rules are seen to be unnecessary, out of date, inaccessible, unreadable, unworkable and/or

unable to be complied with or where there is a more effective or efficient way of working to achieve the same or a similar outcome.

3. Find your voice and speak up where practices of others are contrary to standards or breach policies and report where behaviour of colleagues becomes reckless.
4. Engage with the professional body that represents the speciality and participate in education to keep up-to-date with amended standards, new research and evidence-based practices
5. Use the ACORN standards as the benchmark for best and safest practice for self and colleagues and the patients.

Opportunities for further research

1. The substantive theory emerging from this research can be further developed through operationalising the concepts as constructs that can be measured to empirically test relationships between the concepts identified.

Ethical issues

There are ethical issues posed by rule breaking. Perioperative nurses, in common with other nurses, are frequently faced with ethical dilemmas in delivering patient care. They face daily conflicts between doing the right thing (following rules), acting as patient advocate, maintaining collegial relationships with other members of the team and meeting the demands placed on the individual by the organisation. Putting patients first and doing no harm is the ethical commitment of every professional because patients rely not only on the skills and knowledge of nurses but also on their integrity (Hill, J 2012). Having integrity means following your moral or ethical convictions and doing the right thing in all circumstances, even if no one is watching you. This can be a dilemma when faced with the competing demands present in the operating theatre at any given time and has important implications for perioperative nurses in terms of the choices they make and the priorities they set.

Summary

Whilst there is debate on the accuracy of adverse event rates quoted in international and national studies, patients undergoing surgery continue to suffer preventable adverse events and the consequences can be severe for the patient. The operating theatre is a complex and dynamic environment characterised by a high level of task performance and low tolerance for error and perioperative nurses have a key role in the detection and prevention of errors and adverse events. Workplace culture, communication and teamwork, the level of distractions and interruptions and personal and psychological factors create an environment vulnerable to the occurrence of errors and adverse events.

The reasons that adverse events occur are complex and multifactorial with more recent studies acknowledging organisational deficiencies and latent failures but also recognising the abilities of the individual practitioners to adapt and respond to system changes. In adapting and responding to changes, perioperative nurses adopt ways of working to meet the demands of their work.

As previously described the data shows that decisions to work in ways other than following the rules are influenced by several factors including organisational conditions, ambiguity of rule, task and responsibility, team characteristics and individual characteristics. These factors construct the **context** within which perioperative nurses practice and create the **phenomena** of 'being pressured' and 'feeling pressured'. The participants respond to this pressure by engaging in a **process** of reshaping their behaviour. Together these concepts form the **substantive theory** that perioperative nurses 'reshape their practice in response to being pressured and feeling pressured to get the job done'.

Without deviation from the norm, progress is not possible (Frank Zappa)

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Appendices

Appendix 1: Ethics approval letter

Office of Research Services
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HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

UTAS

16 April 2015

Dr Karen Ford
C/- Royal Hobart Hospital

Sent via email

Dear Dr Ford

REF NO: H0014736
TITLE: Getting the job done - ways of working in Perioperative Nursing and implications for patient safety and practice

Document	***Version***	***Date***
HREC Low Risk Application Form	Version 2	March
Participant Consent Form	Version 1	November 2014
Participant Information Sheet	Version 1	December 2014

The Tasmanian Health and Medical Human Research Ethics Committee considered and approved the above documentation on **13 April 2015** to be conducted at the following site(s):

Royal Hobart Hospital
Calvary Hospital (local site approval required)

Please ensure that all investigators involved with this project have cited the approved versions of the documents listed within this letter and use only these versions in conducting this research project.

This approval constitutes ethical clearance by the Health and Medical HREC. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approvals of other bodies or authorities are required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

All committees operating under the Human Research Ethics Committee (Tasmania) Network are registered and required to comply with the *National Statement on the Ethical Conduct in Human Research* (NHMRC 2007 updated 2014).

Therefore, the Chief Investigator's responsibility is to ensure that:

(1) The individual researcher's protocol complies with the HREC approved protocol.

(2) Modifications to the protocol do not proceed until **approval** is obtained in writing from the HREC. Please note that all requests for changes to approved documents must include a version number and date when submitted for review by the HREC.

(3) Section 5.5.3 of the National Statement states:

Researchers have a significant responsibility in monitoring approved research as they are in the best position to observe any adverse events or unexpected outcomes. They should report such events or outcomes promptly to the relevant institution/s and ethical review body/ies and take prompt steps to deal with any unexpected risks.

The appropriate forms for reporting such events in relation to clinical and non-clinical trials and innovations can be located at the website below. All adverse events must be reported regardless of whether or not the event, in your opinion, is a direct effect of the therapeutic goods being tested.
http://www.research.utas.edu.au/human_ethics/medical_forms.htm

(4) All research participants must be provided with the current Patient Information Sheet and Consent Form, unless otherwise approved by the Committee.

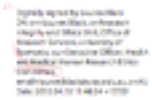
(5) The Committee is notified if any investigators are added to, or cease involvement with, the project.

(6) This study has approval for 4 years contingent upon annual review. A *Progress Report* is to be provided on the anniversary date of your approval. Your first report is due **13 April 2016.** You will be sent a courtesy reminder closer to this due date.

(7) A *Final Report* and a copy of the published material, either in full or abstract, must be provided at the end of the project.

Should you have any queries please do not hesitate to contact me on (03) 6226 2764.

Yours sincerely



Lauren Black
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Appendix 2: Participant consent form

Name of Researcher: Sharon Bingham PhD Candidate
Study Title: Getting the job done - ways of working in Perioperative Nursing and implications for practice and patient safety.

This consent form is for all participants in the abovementioned study.

1. I agree to take part in the research study named above.
2. I have read and understood the Information Sheet for this study.
3. The nature of the study has been explained to me.
4. I understand that my participation in this study will be by:
    i. Observation of practice and follow up interview or
    ii. Interview or
    iii. Group interview
5. I also understand that the interviews and focus group meetings will be recorded.
6. I understand that there are no foreseeable risks associated with participation in this study.
7. I understand that all research data will be securely stored on the University of Tasmania's premises for five (5) years from date of publication of the study results and will then be destroyed.
8. Any questions I have asked have been answered to my satisfaction.
9. I understand the researcher will maintain confidentiality and that any information I supply to the researcher will be used only for the purposes of the research. I also understand that if participating in a group interview all participants will be requested to keep discussions confidential, but this cannot be guaranteed.
10. I understand that the results of the study will be published so that I cannot be identified as a participant.
11. I understand that my participation is voluntary and that I may withdraw at any time without any effect. I understand that I will not be able to withdraw my data after data analysis has commenced.

Participants name:	Participant's signature:	Date:

Statement by Investigator
I have explained the project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

Investigator's name:	Investigator's signature:	Date:

UNIVERSITY of TASMANIA | FACULTY OF HEALTH

Participant information sheet

Study Title: Getting the job done - ways of working in Perioperative Nursing – implications for practice and patient safety.
This information sheet is for all participants in the study named above.

Invitation
You have been invited to participate in this study conducted by Sharon Bingham in partial fulfilment of a PhD, under the supervision of Professor Kenneth Walsh and Dr Karen Ford.

What is the purpose of this study?
The aim of this research is to better understand the relationship between the ways that perioperative nurses work and patient safety so that perioperative nurses can minimise the risk of harm to their patients and patients can remain free from injury during their surgery.

Why have I been invited to participate?
You have been invited to participate in this study because you are a practicing perioperative nurse.
Your involvement in this study is purely voluntary and there are no consequences should you decide not to participate or to withdraw from the study.

What will I be asked to do?
Your participation may be in the form of:

1. Observation of practice and follow up interview or
2. Interview or
3. Group interview

Interviews will be recorded to enable the researcher more time to participate and these recordings will be transcribed and analysed following the interview.
Participants will have the opportunity to review and correct a transcript.
All data will be treated confidentially. If participating in a group interview, all participants will be requested to keep discussions confidential, but this cannot be guaranteed.

Are there any possible benefits from participation in this study?
Your participation in this study will benefit the profession of perioperative nursing by

improving our understanding of the different the ways perioperative nurses work and why they are adopted. A clearer understanding will contribute to discussion and debate about the role of the perioperative nurse in patient safety and inform decision making in relation to steps that may need to be taken to address those ways of working that may be have unintended consequences for patients.

Are there any possible risks from participation in this study?
There are no foreseeable risks with the study

What if I change my mind during or after the study?
Participants are free to withdraw at any time during the study and can do so without providing an explanation. It may not however be possible to remove your data from the study once data analysis has commenced.

What will happen to the information when this study is over?
The raw data will be kept for 5 years from date of first publication of the thesis. The data will be stored on University of Tasmania premises and will then be destroyed.

How will the results of the study be published?
The results from the study will be published as a thesis in 2017. The thesis will be made available via the University of Tasmania library website and to individuals on request. Results may also be published in academic journals. Individual participants will not be identifiable in the publication of the results.

What if I have questions about this study?
If you have any questions I can be contacted by email on Sharon.bingham@utas.edu.au or by mobile on **0447 206 095**.
My supervisors can be contacted as follows:
Professor Kenneth Walsh, Professor of Translational Research Nursing and Midwifery, Conjoint University of Tasmania and THO-South. Email Kenneth.walsh@utas.edu.au or phone 03 6226 7375.
Dr Karen Ford, ADON Research and Practice Development, Nursing and Midwifery, THO-South and Senior Clinical Lecturer, School of Health Sciences, University of Tasmania. Email Karen.ford@dhhs.tas.gov.au or phone 03 62228530.

This study has been approved by the Health and Medical Research Ethics Committee. If you have any concerns or complaints about the conduct of this study, please contact the Executive officer of the HREC (Tasmania) Network on 03 62266254 or email human.ethics@utas.edu.au The Executive Officer is the person nominated to receive complaints from research participants. Please quote ethics reference number H0014736. This information sheet is for you to keep. You will be requested to sign a consent form confirming your agreement to participate in this study.

Appendix 4: Guidelines for interviewing

Guidelines for conducting intensive interviewing (Charmaz, 2014)

Do

1. Listen, listen and listen some more
2. Try to understand the described events, beliefs and feelings from your research participant's point of view, not your own
3. Aim to be empathetic and supportive
4. Build trust
5. Encourage your research participant to state things in his or her own terms
6. Let the participants explore a question before you ask any specific probes
7. Ask the participant to elaborate, clarify or give examples of his or her views
8. Be sensitive to the participant's non-verbal responses to you and your questions
9. Revise a question that doesn't work
10. Be willing to take time for unanticipated issues that might come up
11. Leave your participant feeling positive about the interview experience and about self
12. Express your appreciation for the opportunity to talk with him her.

Don't

1. Interrupt
2. Correct the research participant about his or her own views, experiences or feelings
3. Interrogate or confront
4. Rely on 'do you' or 'did you' probes (these elicit 'yes' or 'no' responses, rather than information and reflections)
5. Ask 'why' questions ('Why' questions are generally taken as hostile challenges in numerous cultures. Instead phrase questions in these ways 'Tell me about…,' Could you tell me more about….,' How did….,' What was…..,')
6. Ask loaded questions
7. Expect you research participants to answer questions that you would be unwilling to answer
8. Take an authoritarian stance in the interview (It is a privilege to share someone's private views and personal experience – establish equality, not authority)
9. Ignore or gloss over what the participant wants to talk about. Be willing to take more time if need be
10. Forget to follow up and thus overlook clarifying points and/or asking for further thoughts and information
11. Truncate the interview to get it over in time
12. Leave when the participant seems distressed

Appendix 5: Sample interview questions

Opening statement

Thank you for allowing me to observe you as you practiced. I am interested in understanding what was happening and what you were thinking and feeling during that episode of practice and would like to ask you some questions relating to that.

Initial open-ended questions

1. Could you run through what you were doing when you were …….?
2. What was happening?
3. What happened next?
4. Is that what normally happens?
5. What do you do if you get stuck?
6. What things do you find helpful in dealing with….?

Intermediate questions

7. Was there anything happening that was influencing you in any way?
8. Was there anything getting in the way of what you were doing?
9. Do those things normally get in the way?
10. How do you normally deal with those situations?
11. Have you had previous experiences with this type of situation?
12. Did this affect how you handled this situation?
13. Can you tell me what you thought the outcome was for the patient?
14. As you reflect on this episode do you think you would do anything differently next time?

Ending questions

15. Is there something else you think I should know to help me better understand your experience?
16. Do you have any questions for me?